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AN INQUIRY INTO THE CAUSES OF INTERNATIONAL TRADE REGULATIONS IN UNDERDEVELOPED COUNTRIES

by

© CHAO-YING TENG

A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "An Inquiry Into the Causes of Inernational Trade Regulations in Underdeveloped Countries", submitted by Chao-ying Teng in partial fulfilment of the requirements for the degree of Master of Arts.

Abstract

The traditional trade models, as represented by the famous Ricardian model and the Heckscher-Ohlin model, are often used, sometimes with evangelical fervour, to stress the gain from international trade arising from fulfillment of the optimum conditions of resource allocation. The models show that without any increase in resources, or technological change, each country is able to enjoy a higher real income by specializing in production according to its comparative advantage and trading. The traditional trade models have been argued against in this paper on the ground that:

(1) The classical theory of the gains from free trade assumes full employment. But in many underdeveloped parts of the world, though not all, high population density and high rates of population increase are so severe as to cause high rate of disguised unemployment. In a country with heavy unemployment, the best alternative use of the resources may require departure from principle of comparative advantage.

(2) The classical comparative advantage theory is largely a simplified form of static general equilibrium theory. In all countries, especially those which are gaining the momentum of rapid economic progress, the structure of comparative costs changes over time. Therefore, commodities to be produced and traded can not be determined by a simple once-for-all ranking procedure along the lines of the comparative advantage principle.

(3) There are two more basic points which have escaped the

attention of the classical theorists entirely. First, they fail to understand that the primary form of external trade is a trade of availability for unavailability. Second, they fail to understand that it is world trade that dictates specialization, not the other way round.

(4) Even in a static setting the traditional trade models are found of debatable practical value. For example, Leontief disclosed the United States is defying the Heckscher-Ohlin principle by importing capital-intensive goods and exporting labor-intensive ones.

On the other hand, tariff and other similar trade regulations have their merits:

(1) It has been shown that a tariff may increase, not decrease, world production and welfare in the long run and that a tariff will help achieve, under certain conditions, better resource allocation than is possible under free trade.

(2) Tariffs and other similar trade regulations are useful instruments in accelerating capital formation in a country, effecting foreign capital inflow, and increasing employment. They are instrumental in promoting economic development in general.

(3) It has been shown empirically that even if there is some cost associated with imposition of a tariff, the costs will normally be low in terms of a nation's income even with a considerable tariff. This has important policy implications. It would be argued that even if the tariff does not help, it will not hurt much.

Acknowledgements

This thesis is prepared and completed under the supervision of Dr. T. L. Powrie. Based on his instructive comments, several sections of this paper and a number of paragraphs of other sections have been re-written. Also a few new paragraphs have been added. To use a Chinese expression, what the author has done is drawing a dragon. It is my supervisor who fits up the dragon with two bright eyes. Without the eyes, the dragon, though a powerful animal, is a dead one.

I have also benefited from the discussions with Dr. M. S. Noorzoy, who has acted as my supervisor after Dr. Powrie leaves for Montreal for a two-year leave.

None of these persons, however, necessarily subscribes to the interpretations and conclusions of this paper.

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CHAPTER I

AN APPRAISAL OF OUTSTANDING TRADE THEORIES

Section 1 Review of Outstanding Trade Theories

As far as the theories of commodity trade are concerned, two stand out above the others. One is the Ricardian trade model, the other is known as the Heckscher-Ohlin trade model.

(1) The Ricardian Model

According to the Ricardian trade model, trade could take place between nations when the ratio of costs of production of two goods is different in one nation than in the other. The core of the theory was the principle of comparative advantage or cost. Comparative advantage is defined in terms of labor hours, according to Ricardo.

To illustrate the principle of comparative advantage, let us take a very simple example of two countries, Argentina and the United States, each producing only two commodities: wheat and tires. Let us suppose that one hour's labor devoted to wheat or tire production can produce the quantities in Argentina or the United States shown in the following table:

Commodity	Argentina	U. S. A.
Wheat (bushels)	15	20
Tires	5	10

Notice that on the basis of the figures assumed in the above table, the United States has an absolute advantage in the production of both wheat and tires, but the United States' absolute

advantage is greater in tires than in wheat. Since Argentina's absolute disadvantage is less in wheat production, we may say that she also has a comparative advantage in wheat production.

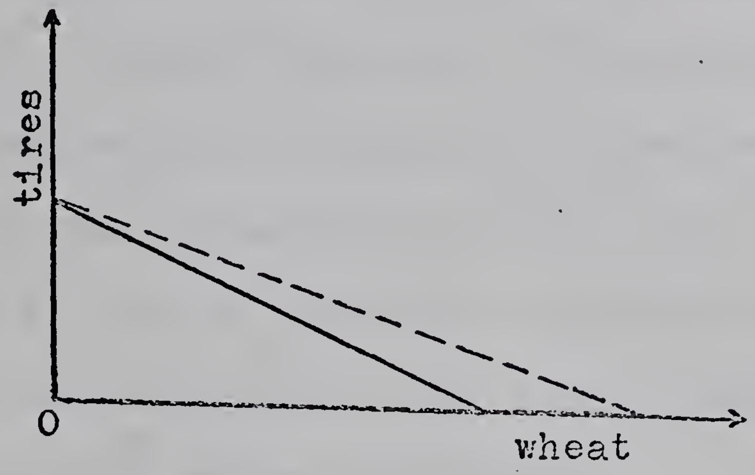

Fig. 1.1 Hypothetical U. S. production possibility curves.

To demonstrate the discussion graphically, the U. S. production possibility curve before trade is drawn as the solid line in Figure 1.1. The slope of the solid line is 1:2, representing the production ratio 10:20 between tire and wheat production in the United States After trade takes place, we can draw an exchange line, shown by the broken line, that lies above the production possibility curve everywhere to the right of the vertical axis. If we assume the terms of trade between United States and Argentina are 2.5 bushels of wheat for 1 tire, the slope of the broken line becomes 1:2.5. The attainable set of wheat and tires is thus pushed outward because of trading with Argentina. With trade, the United States' real income is evidently higher than without trade. The same results would follow from a graph representing the before- and after-trade situations in Argentina.

Notice that the reason these comparative advantages exist is that we have assumed different cost ratios for the two commodities in each country--in Argentina, the cost ratio is 3:1 (15:5) and in the United States it is 2:1 (20:10). The differences in these cost ratios means that tires are cheaper in the United States, and wheat is cheaper in Argentina, in terms of opportunity cost. Had we assumed the same cost ratios in each country, say 10:5 (2:1) in Argentina and 20:10 (2:1) in the United States, neither country would have a comparative advantage, and no basis for trade would exist.

In general, let

W = total physical amount of commodity L produced per hour's labor in country A.

T = total physical amount of commodity K produced per hour's labor in country A.

Similarly, w and t represent total physical amount of commodity L and K respectively produced per hour's labor in country U. We can say that country A's advantage lies in the production of commodity L when

$$\frac{W}{T} > \frac{w}{t}$$

Given the differences in the cost ratios within the two countries, the United States, with her comparative advantage in tires, should specialize in tire production, and Argentina, possessing a comparative advantage in wheat, should specialize in wheat production. If the United States can obtain wheat more cheaply

by trading tires for wheat rather than producing both at home, and if Argentina can obtain tires more cheaply by trading wheat for tires, then both will be better off. Both will have higher real income than is the case without trade.

The Ricardian trade model is essentially, as we can see, a simplified form of static general equilibrium theory. The optimum pattern of production and trade for a country is determined from a comparison of the opportunity cost of producing a given commodity with that at which the commodity can be imported or exported. In equilibrium, no commodity is produced which could be imported at lower cost. Under the assumptions of full employment and perfect competition and no external economies or diseconomies, the opportunity cost of a commodity, which is the value of the factors used to produce it in their best alternative employment, is equal to its market value. Market value of factors and commodities can therefore be used to determine comparative advantage under competitive conditions.

(2) The Heckscher-Ohlin Model

The Ricardian theory of international trade was unable to explain adequately how the gains from trade are distributed between the different factors of production. The international value theory is based upon the assumption of only one factor of production, labor. It was not possible, therefore, for Ricardo, actually for all early classical economists, to develop a theory

showing how trade would affect the remuneration of each of the individual factors in relation to one another.

In the absence of a theory of production which recognized the substitution of one factor of production for another the tendency among classical followers became to assume that the reward of each of the factors depended upon the productivity of the entire economy. Foreign trade which increases the real national income, was then thought to increase also the rewards of each of the factors of production. (Pigou, however, was able to argue as early as in 1906 that an increase in output in one industry at the expense of another industry will favour the factors of production which are more important in the first. Their share in the national income might therefore rise relatively as well as absolutely.)

It is the Heckscher-Ohlin approach which allows an easy integration of international trade with the structure of domestic production and exchange. Heckscher's celebrated article "The Effect of Foreign Trade on the Distribution of Income"[1] was published in 1919 in Swedish. Heckscher's pupil Bertil Ohlin, elaborated and reshaped the theory, first again in Swedish in

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[1] E. Heckscher, "The Effect of Foreign Trade on the Distribution of Income", Readings in the Theory of International Trade. Homewood, Illinois: Richard D. Irwin, Inc., 1950.

his doctoral dissertation and more fully in 1931 in his well known book Interregional and International Trade.[1] The Heckscher-Ohlin theorem then became the basis for further developments of this part of the theory of international trade.

Let us demonstrate the Heckscher-Ohlin model also by a diagram. In Fig. 1.2, ACBD and A'C'B'D' represent a pair of the Edgeworth-Bowley box diagrams, corresponding to two countries I and II. These are drawn so that A, A' represent the origins for isoquants for a good A, and B, B' the origins for the isoquants for a second good B. AC, A'C' measure the endowments of

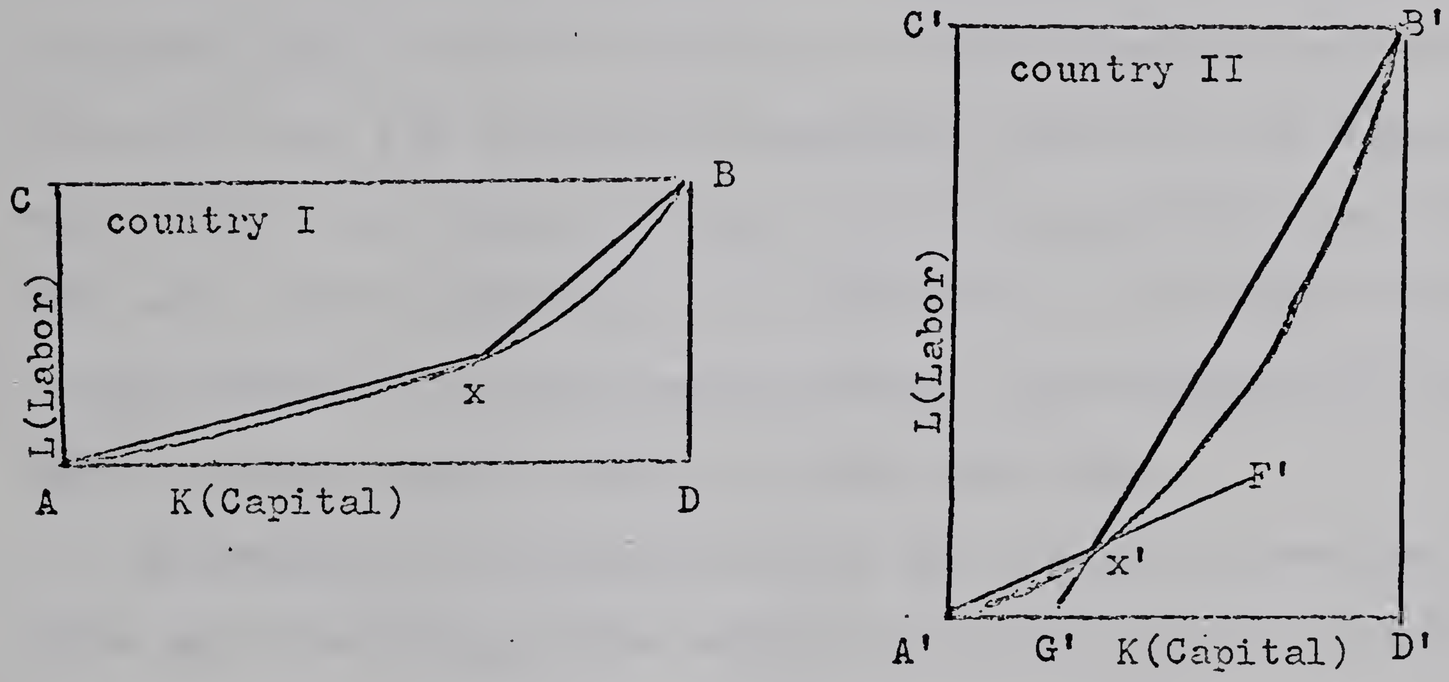

Fig. 1.2 Edgeworth boxes for hypothetical countries I and II.

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[1] B. Ohlin, Interregional and International Trade. ("Harvard Economic Studies", Vol. XXXIX) Cambridge, Mass.: Harvard University Press, 1933.

labor, and AD, A'D' the endowments of capital, in the two countries. As the figure is drawn AD > A'D', AC < A'C', so that country I has more capital and less labor than country II. (The two factors of production L and K are assumed to be perfectly divisible, perfectly mobile within each country, and in some degree substitutable.)

Commodity A is assumed to be a capital-intensive good, B a labor-intensive good. Both industries are subject to a linear homogeneous production function. The proportions in which the two goods are produced in country I at any corresponding point[1] (x, and x' are two of such corresponding points in the figure.) will differ from those in country II. The proportions are such that each country produces more, relatively, of the good which is most intensive in its abundant factor, the supplies of both factors being exactly used up in both countries.

By reading off the amounts of A and B along the contract curve and translating these amounts to a plane such as in Fig. 1.3 we derive the production frontiers MN and M'N' for countries

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[1] Let x be some point on the contract curve of country I. In A'C'B'D' (i. e. country II), draw A'F' so that it is parallel to Ax in ACBD, and draw B'G' so that it is parallel to Bx in ACBD. Let A'F' and B'G' intersect in x'. Then x and x' are corresponding points. See K. Lancaster, "The Heckscher-Ohlin Trade Model: A Geometric Treatment", Economica (Feb., 1957).

I and II respectively.

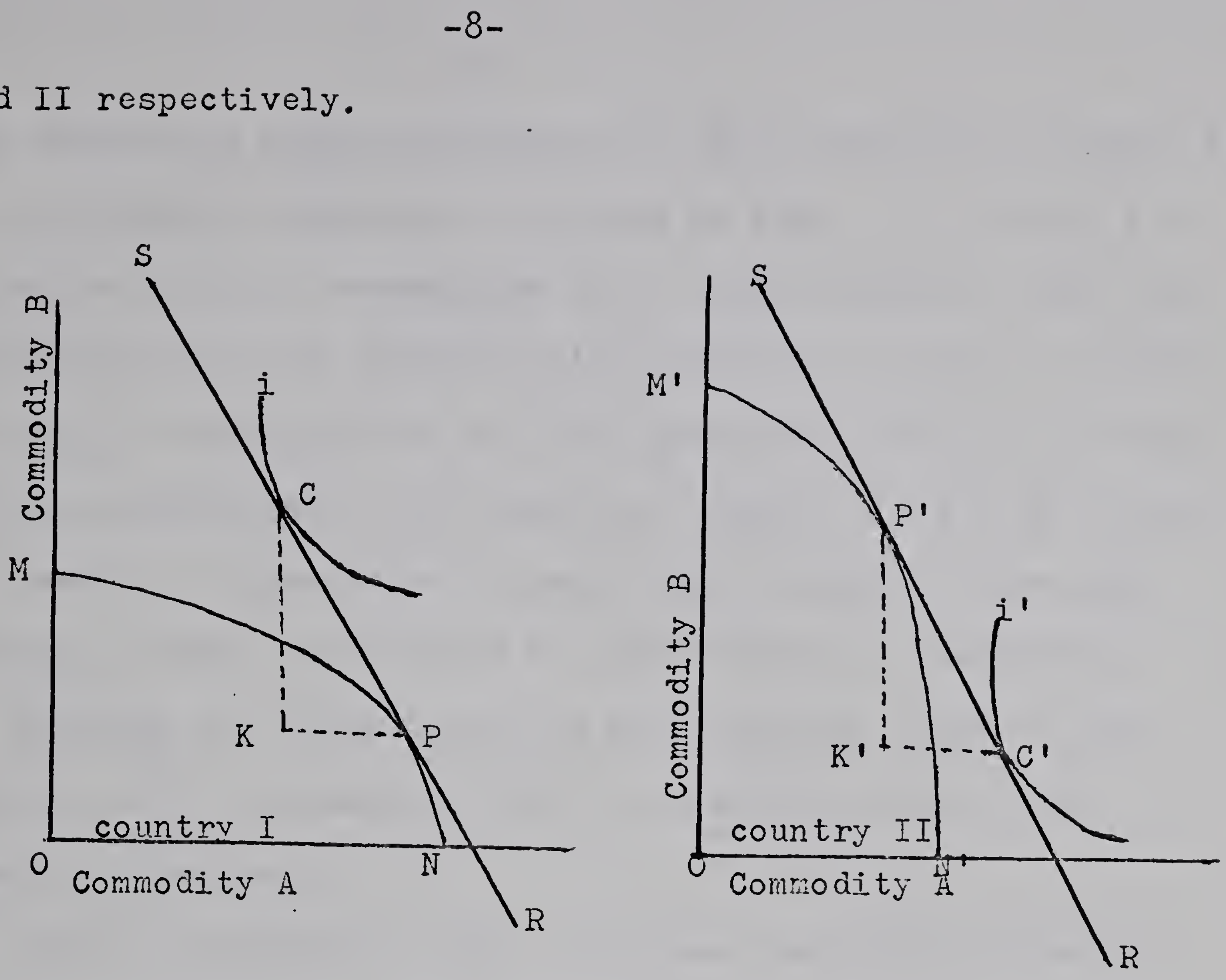

Fig. 1.3 Impact of trade on production and consumption in countries I and II.

Assume both countries have the same indifference maps, and draw community indifference curves i and i' for countries I and II respectively.[1] Let us now open the countries to trade, and allow an international price ratio--the terms of trade--to be represented by the slope of RS. Each country will tend to specialize in the production of the commodity which it can produce relatively cheaply--namely, the commodity which is intensive in its relatively abundant factor--and will demand imports from the

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[1] Indifference curves i and i' must be parallel to each other because we assume both countries have the same indifference maps. But they may not necessarily be the same indifference curves. When trade opens, both countries are able to enjoy higher, but not necessarily identical, levels of consumption.

other country by supplying exports of this commodity in which it has a comparative advantage. As shown in Fig. 1.3, country I's production is at P, consumption at C, exporting PK of good A in exchange for CK of B. Country II's production is at P', consumption at C', exporting P'K' of B for importing C'K' of A. If our model is restricted to two countries, then CK = P'K', PK = C'K'. As a result of international trade, each country is then able to enjoy a higher real income by specializing in production.

Although the formulation has been given in terms of two countries only, it is clear that it is equally true of any number of countries.

Trade, according to Ohlin, also has the effect of making locally relatively abundant factors of production less abundant and locally relatively scarce factors less scarce. This causes a tendency towards greater equality of factor prices internationally and will have an effect on the relative factor rewards at home: it must lower (raise) the relative share in the national income of the relatively scarce (abundant) factor of production. The critical assumptions in this trade model are that factors of production are comparable among countries and that production functions are the same.

Section 2 Shortcomings of Existing Trade Theories

Criticisms of the Ricardian comparative advantage trade theory grow as time elapses. Some attack directly the labor theory of value, the foundation upon which the principle of comparative

costs was built. Since the determination of domestic exchange values on the basis of differences in absolute labor cost is inaccurate because of the existence of non-competing group in the labor force, how, then, could differences in relative labor cost be used as a basis for determining international values? There are of course other attacks from different angles on the Ricardian model.

With respect to the Heckscher-Ohlin model, some attack is directed toward the impossibility of fulfillment of all the following conditions simultaneouly which are necessary for the operation of the model.

(1) pure competition in product and factor markets
(2) differing factor endowments in the 2 countries
(3) differing factor intensities in the production of the 2 commodities
(4) incomplete specialization
(5) identical, linear homogeneous production function (constant returns to scale)
(6) qualitatively identical factors
(7) no reversal of factor intensities as factor endowments change

Proponents have argued "The Heckscher-Ohlin model occupies the very center of international trade theory for reasons unconnected with its realism. Instead, it has been strengthened

by the very properties of its abstractness."[1] But unfortunately empirical studies have shown the abstract Heckscher-Ohlin model is far from adequacy in explaining the present day world trade. Discussions about empirical findings are postponed until Section 3.

In this section, the present writer selects only three topics for discussion: (1) The problem of factor price equalization; (2) The problem of identical production function; and finally (3) The problem of comparative advantage and specialization from the view point of underdeveloped countries.

These topics are selected on the following considerations: (1) Factor-price inequality, according to Heckscher and Ohlin, is the primary cause of trade; and factor-price equalization, resulting from international trade, has the effect of increasing real incomes of the trading nations. Therefore, factor price-equalization forms the kernel of the Heckscher-Ohlin model. (2) The problem of identical production functions is discussed with the purpose of showing that (a) Identical production functions in terms of labor and capital only may yield completely different outputs qualitatively and quantitatively; (b) On the other hand, completely specified production functions are not testable and non-existent in the real world; and (c) The trade theory

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[1] Kelvin Lancaster "The Heckscher-Ohlin Model: A Geometric Treatment", Economica (Feb., 1957).

based on such an assumption is of very little practical value, to say the least. (3) The Ricardian and Heckscher-Ohlin model are especially unsuitable to developing countries.

As a matter of fact, the Heckscher-Ohlin model differs from the Ricardian model only in degree, not in kind. Both of them can be labelled as comparative advantage trade theory in the sense that the Heckscher-Ohlin model goes behind comparative costs and establishes them as due to something more fundamental, namely, differences in factor endowments.

Suppose we define for a particular product the following variables:

T = total money costs per unit output

W = money wage per man-hour

R = man-hours worked per unit of product

P = ratio of average total labor and capital costs to labor costs per unit of product

Capital letters denote country I, small letters country II; primes denote the second commodity. From these definitions, necessarily T = WRP. We can say that country I's advantage lies in the first commodity when

$$\frac{T}{T'} < \frac{t}{t'} \qquad (1)$$

This is the Ricardian comparative advantage.

Inequality (1) can occur only when at least one of the following inequalities holds:

$$\frac{W}{W'} < \frac{w}{w'} \qquad \frac{R}{R'} < \frac{r}{r'} \qquad \frac{P}{P'} < \frac{p}{p'}$$

This means a country's comparative advantage is derived from differences in factor endowments or factor efficiencies.

When $\frac{W}{W'} < \frac{w}{w'}$ holds, the comparative advantage is derived from comparatively lower money costs per man-hour. In other words, it is a relatively labor rich country.

When $\frac{R}{R'} < \frac{r}{r'}$ holds, the comparative advantage is derived from relatively lower man hour inputs per unit of product. In other words, the comparative advantage is derived from a relatively higher labor efficiency.

If $\frac{P}{P'} < \frac{p}{p'}$, it means it is a country with a relatively lower capital cost. The comparative advantage is derived from a relatively higher capital efficiency.[1]

Both the Ricardian and the Heckscher-Ohlin model stress relative differences. At least, there is no real conflict between the Heckscher-Ohlin approach and that by way of comparative costs.

(1) The Problem of Factor Price Equalization

In Heckscher's and Ohlin's view, under the assumption of identical production functions and qualitatively identical factors, differences in factor endowments are the primary

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[1] The argument is an extension of the basic formula shown in R. E. Caves, Trade and Economic Structure, Cambridag, Mass.: Harvard University Press, 1960, Chap. X.

cause of trade. In the absence of trade, differences in factor endowments would result in relatively lower prices of the abundant--and higher prices of the scarce--factors whereas trade will mitigate divergences in factor-price ratios since the trading countries will export (import) products which use the abundant (scarce) factors more intensively. In Ohlin's words "The mobility of goods to some extent compensates the lack of interregional mobility of the factor".

Furthermore, according to Heckscher-Ohlin model theorists, external trade based on differences in skill or knowledge would ultimately cease to exist because knowledge or skill can be spread out. "Portugal could learn to make cloth as cheaply as England." But there would be no incentive for factor endowments to become uniform, so resulting in the cessation of trade, because of "factor price equalization."

In discussions of this sort, the point most often made is that the persistent differences of incomes and prices in different countries -- higher in the United States than in England, higher there than in Italy, higher there than in Indonesia--is striking proof of the international immobility of productive factors, and therefore of the correctness and adequacy of the classical theory of international trade.

But the conditions of factor-price equalization include the irreversibility of factor intensities in the production of each commodity as factor endowments change. In other words, it is

assumed that, no matter how factor supplies differ, the labor-intensive commodity (commodities) will remain relatively labor-intensive with respect to the capital-intensive commodity (commodities). However, factor intensities may reverse themselves. For example, capital intensities might change because the availability of a large amount of capital may bring about the use of relatively more capital-intensive methods in the production of those commodities which were manufactured labor-intensively on a small scale. In the case of the reversal of factor intensities between countries, it has been proved that the differences between factor prices may increase rather than diminish.

It has also been pointed out that if the number of goods is less than the number of factors, factor prices are not equalized and an infinite number of factor combinations and factor-price ratios are compatible with the same commodity-price ratios. It has also long been agreed upon that factors of different quality should be treated as different factors. The number of factors increases further if specific technological know-how in producing a commodity should be regarded as a separate factor, as suggestes by Harrod.[1] The introduction of non-traded goods creates further

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[1] Roy Forbes Harrod, "Factor-Price Relations Under Free Trade". (Address delivered to the Association of University Teachers) The Economic Journal (June, 1958).

difficulties. The equalization of factor prices requires now that the number of traded goods should be equal to, or greater than, the sum of the number of factors and non-traded goods.[1]

In addition, monopolistic competition (including product differentiation), transportation costs, different productive structures between any two countries and differences in their preference for imported products, wages and price rigidities, etc., are some also often mentioned causes leading to different factor prices internationally.

Even inside the United States, we do not see an approximate equality of either wages or prices, or returns to capital, as between different parts of the country. In fact, the market heterogeneity of economic conditions, of stages of economic development, of point of view, the diversity of economic interests, the "sectionalism" of the United States are quite familiar. This kind of divergency is even more striking in underdeveloped countries because of inferior organization of

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[1] For this argument in detail, please consult Bela Balassa, "The Factor-Price Equalization Controversy", Weltwirtchaftliches Archiv Bd (IXXXVII).

capital and labor, inferior domestic banking, inferior internal means of communication, inferior perception of economic opportunity. If equality of factor prices is not possible within a country, we cannot see how it is possible internationally through international trade.

(2) The Problem of Identical Production Functions

The Heckscher-Ohlin principle follows from the general presumption of optimizing behavior only on the assumption (among others) that production functions are identical in different countries. There are two interpretations with respect to the production functions identity.

(a) If the production function of, say, bananas is in terms of labor and capital only, the amount of banana production with identical labor and capital inputs may differ from place to place. For example, a frigid-zone located country is not suitable for banana production climatically. But if this country persists in growing some banana by itself, one of two things will result: either less banana is produced with identical labor and capital, or an equal amount of banana is produced only at higher unit cost in the frigid-zone, i. e., by using greenhouses, artificial heat, etc. Therefore, if we are to talk about identical production functions between countries, while speaking of only two, or a small number, of inputs, we must confine the discussion to countries which are identical in climate and in other unspecified influences on productivity.

(b) It is true that although the Heckscher-Ohlin model, for pedagogical purpose, is presented in terms of labor and capital only, this is because two dimensional geometry can handle only two factors. The theory can be generalized to any number of factors mathematically. In other words, what Heckscher and Ohlin meant is a completely specified production function. Logically, the production function for a good can be identical in two countries only if every influence on output is explicitly specified as an input. The inputs in such a production function must therefore include each grade of labor, each form of capital, each kind of natural resource, each type of climate, and so on. If, say, climate is an influence on output, and is different between two countries, we cannot logically say that the production function is the same in both countries unless we somehow include climate among the inputs. Thus, we can preserve the assumption of identical production functions by using completely specified production functions. This procedure has one drawback. Empirically, a completely specified production is far too complex for statistical analysis.

In order to test the Heckscher-Ohlin model, we have to determine if observed changes in output of, say, bananas can in fact be accounted for by changes in the variables labor, capital, technology, natural resources, etc. A refutation

would presumably occur if we observed a significant amount of variation in output that could not be accounted for by changes in these factors. But in order to make such an observation, we would have to know when and how these explanatory variables had changed. It is possible to observe directly change in labor and capital. To some extent technological changes are also detectable, though indirectly through changes in the productivity of labor and capital. Unfortunately, it is difficult to conceive of a way to quantify differences in climate. We also note there are many other influences on output which cannot be embodied into a production function because they are also unmeasurable. Thus if we have no independent way of expressing climate and the like in quantities, we cannot test a production function under the Heckscher-Ohlin model. Further, even if we could empirically test it, we would not be very interested in it, because we would know in advance of the test, that such a completely specified production is only a tautological statement that could not be refuted.

As shown in Section 3 of this Chapter, confining himself to a production function in terms of labor and capital only, Leontief conducted an empirical study which disclosed that the United States is defying the Heckscher-Ohlin principle by importing capital-intensive goods and exporting labor-intensive ones. If the actual empirical observations are just the opposite to the theory, there are only two explanations. Either the United States is a rare case in which natural resources and

the like are the dominant factors influencing production, or, if the U. S. case is not unusual, the Heckscher-Ohlin model on the condition of completely specified production functions is of very limited practical value.

(3) The Problem of Comparative Advantage and Specialization

It is argued that in order to raise a nation's real income, it becomes necessary for that nation to produce and export those products which use the abundant factors more intensively and import those products using more intensively the scarce factors. So the principle of comparative advantage virtually favors an industrial specialization on the basis of relative production advantage on a national basis. In other words, national specialization is regarded as a means of promoting world trade. Specialization is thus the characteristic feature and the root idea of international trade.

Since capital is often the scarcest in underdeveloped countries, they are advised to produce and export commodities that use relatively less capital per unit of output and to import items requiring more capital.

But as a country is registering the momentum of economic growth, labor and management acquire increasing experience and therefore rising efficiency in actual production. Technology also progresses very rapidly. The over-all production and the quality and quantity of factors of production change substantially over time, in part as a result of the production process

itself. In other words, the structure of comparative costs change due to factor accumulation, technological progress and increase in labor efficiency.

When a country is economically developing, its least cost production function also varies continuously. One of the changes is that less labor and more capital are united in each unit of product. For example, in the United States, by 1920, only 84 per cent as much labor was embodied in each unit of product as in 1899, whereas 176 per cent as much capital was so contained. In 1922 the corresponding percentages were respectively 67 and 180.[1]

Proponents for "balanced growth" argument show that investment will be more profitable in related sectors, because of horizontal and vertical interdependence, than in the same sectors considered separately. This effect of investment in one sector on the profitability of investment in another sector, via increased demand or reduced costs, has been called by Scitovsky a "dynamic external economy."[2] Of course, such balanced growth demands a sufficiently abundant supply of factors to permit growth on several fronts at once. If we assume resources are too limited to permit similtane-

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[1] P. H. Douglas, The Theory of Wages, New York: Kelly & Millman, Inc., 1957. pp. 130-131.

[2] T. Scitovsky, "Two Concepts of External Economies", Journal of Political Economy (April, 1954).

ous development of several industries, unbalanced growth is necessary. The optimal pattern of investment under unbalanced growth will then be one which concentrates first on one sector and then on another, with balance being approached only in the long run. The advantage of the unbalanced growth lies in the fact that technological progress may be more rapid if increases in production are concentrated in a few sectors. The net effect of dynamic interdependence, in both the balanced and unbalanced growth arguments, is to destroy the comparative advantage principle, which is largely a simplified form of static general equilibrium theory.

Thus, an advantage based on the pre-development conditions may prove quite limited in duration. It may only last for a few years. After that, an entirely new set of comparative advantages emerges.

Classical trade theory does not exclude changes in the supply of factors and other data over time, but it does insist that under perfect competition the effects of such changes will be reflected in the market mechanism. But it is generally agreed upon that costs of labor and capital in underdeveloped countries do not necessarily reflect their opportunity costs with any accuracy because of market imperfections.

All in all, the commodities to be produced and traded in underdeveloped countries cannot be determined by a single ranking procedure along the lines of classical comparative advantage. In these countries, changes in factor supplies, technical progress, increasing productivity and changes in demand can and will transform the structure of comparative costs. In other words, the assumption of

equilibrium in factor markets is invalidated. The optimum design for a changing market is likely to differ from the optimum under static conditions, under which the lowest cost production for varying operating levels and with changes in product design are of the main concern. On the other hand, optimum development policy under the condition of an expanding market should result in a pattern of resource allocation that allows for unforeseen changes in supply and demand conditions even at the cost of some loss of short run efficiency.

Section 3 Empirical Studies of Comparative Advantage Principle

Not many empirical studies have been done with the purpose of verifying or rejecting the particular theories of the basis of comparative advantage. In this section, the present writer selects three for discussion. They are (1) The verification of the classical theory of comparative costs by G. D. A. MacDougall. (2) The input-output study of the American economy by W. W. Leontief. (3) A similar input-output study of Japan by Tatemoto and Ichimura.

(1) The MacDougall Study[1]

Taking the hypothesis that a country tends to export those products in which its productivity per unit input is relatively

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[1] G. D. A. MacDougall, "British and American Exports: A Study Suggested by the Theory of Comparative Costs. Part I", Economic Journal (Dec., 1951); "Part II", Economic Journal (Sept., 1952). Commentary, R. E. Cave, op. cit. p.269.

higher than in other countries, MacDougall seeks a relationship between (a) the ratio of United States exports to United Kingdom exports of a series of products, and (b) the ratio of labor productivities in the two countries in the same series of products. Since neither country sends a large proportion of its exports to the other, MacDougall switches his attention to the two countries' relative shares of world markets of various products. This is a legitimate translation of the classical comparative costs model into a multi-country setting.

In general, the results of MacDougall's study sustain the classical hypothesis that relative labor productivities are very important forces determining comparative advantage. Nevertheless, there are results which most economists, including MacDougall himself, found disappointing.

In the year of his study, 1937, average wages in United States manufacturing stood around twice the level of United Kingdom wages. When United States productivity in some goods just offsets the higher level of United States wages, United States exports on the average are not equal to British exports of the same products, as expected. Instead, U. S. exports are only about 40 per cent as large as the British exports.

Trying to save the classical comparative advantage theory, MacDougall seeks the explanation for this in Imperial Preference, British commercial leadership, etc. The acceptance of MacDougall's explanation amounts to saying that in addition to the problem of allowing for the different qualities of labor, capital and

other factors of production, we have another even more difficult problem of establishing the identity of qualities of final goods. Identical goods must be identical not only in the objective sense of quality as such but also from the view point of consumers' taste and preference, market traditions, etc.

In testing the Heckscher-Ohlin model, MacDougall tries to verify the common sense proposition that because the United Kingdom has less capital per worker than the United States, it should have a larger share of the world market for goods requiring relatively little capital. Using horsepower as a rough index of capital, he found to his disappointment no significant relationship.

(2) The Leontief Study[1]

Leontief begins with the following hypothesis: Under certain assumptions, a country will tend to export those commodities that are relatively intensive in factors of production that are plentiful there in comparison with the factor endowments of other countries. Likewise, it will import those goods whose production

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[1] W. W. Leontief, "Domestic Production and Foreign Trade: the American Capital Position Re-examined", Proceedings of the American Philosophical Society (Sept., 1953); and his "Factor Proportion and the Structure of American Trade: Further Theoretical and Empirical Analysis", Review of Economics and Statistics (Nov., 1956). Commentaries, R. E. Cave, op. cit. p. 273; A. J. Brown, "Professor Leontief and the Pattern of World Trade", Yorkshire Bulletin of Economic and Social Research (Nov., 1957).

demands relatively large quantities of factors scarce within its borders. Leontief observes that by common consent the United States has more capital per worker than any of the countries with which it trades. Therefore, according to the theory, the United States should export products requiring relatively much capital, and import products which require, when produced domestically, relatively much labor.

His method of testing this hypothesis is to assume that the United States reduces both its imports and exports by some device such as a general ad valorem duty, transferring the factors of production which formerly produced exports to the imports-replacement industries. He holds that if the hypothesis is correct, the export contraction must release relatively more capital, and relatively less labor, than will be taken up at going prices by the import-replacement industries.

Almost all economists, including Leontief himself, received a shock at his findings. In spite of being apparently the most capital-rich country in the world, in relation to population, the United States is defying the Heckscher-Ohlin principle by importing capital-intensive goods and exporting labor-intensive ones. This results have drawn a stream of comments, and comments upon comments. Some intend to explain this contradiction by noting that Leontief's study has not adequately taken into account the abundance of natural resources in the U. S., or that American demand is directed toward much more capital-intensive products than is demand else-

where. (If this argument is accepted, the Heckscher-Ohlin model is virtually disapproved. We could only say that a nation tends to produce, not necessarily to export, the commodities requiring relatively more of its plentiful factor of production.) Even after trying many rearrangements of his basic approach in order to satisfy one or another criticism of statistical practice, the conclusion remained the same: namely, a marginal reduction of United States trade would release more labor and less capital than the import-replacement industries would absorb.

Finally, a line of explanation is given by Prof. Leontief himself. He urged that the United States is not relatively better supplied with capital than other nations when one takes into account the superior physical effectiveness of American labor. He suggested that one American worker is as effective as, say, three foreign laborers.

But there can be no doubt that the United States is a cheap-capital and dear-labor country by any ordinary tests--tests in terms of high per capita use of power, test in terms of the high level of capital per head, etc. So Prof. Leontief's suggestion on the high efficiency of American labor is found hard to be accepted. One of the explanations which could possibly be valid rests upon the omission of natural resources from Leontief's list of factors. This is a drawback inherent in the Heckscher-Ohlin model rather than the fault of Leontief.

(3) Tatemoto and Ichimura Study[1]

With the purpose of verifying Leontief's findings, the Tatemoto and Ichimure study was conducted on the basis of Japan's Interindustry Relations Table of 1951 by using the procedure followed by Leontief. As Japan is ranked among the most important of American trading partners, such a study may be useful in supporting or refuting Leontief's findings.

Based on the 1951 data, Leontief's "index of comparative capital-labor intensity" (i. e. the capital-labor input ratio for competitive imports divided by the same ratio for exports) for Japan is computed. This is compared with that of the United States. This is shown in the following table:

	capital(α) (1951 Yen, 1947 dollar)	labor(β) (man-years)	α/β	γ
Japan, 1951				
Exports	1,385,780	5.520	251,047	0.644
Comp. Imports	1,330,926	8.233	161,657	
U. S., 1947				
Exports	2,550,780	182.313	13,992	
Comp. Imports	3,091,339	170.004	18,184	1.300

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[1] M. Tatemoto and S. Ichimura, "Factor Proportions and Foreign Trade: The Case of Japan", Review of Economics and Statistics (Nov., 1959).

If the value of this index exceeds unity, the country's exports are labor-intensive relative to its imports. This is the case of the United States. If it is less than unity, the pattern is opposite. This is the case of Japan.

According to the study, an average million yen's worth of Japanese exports embodied more capital and less labor than would be required for the domestic replacements of competitive imports of an equivalent amount. This implies that Japan's specialization in the international division of labor is found in capital-intensive, rather than labor-intensive, lines of production. Because Japan's place in the world economy is midway between the advanced and underdeveloped countries, she may be expected to have a comparative advantage in labor-intensive goods when trading with the former and in capital-intensive goods when trading with the latter. Since about 25 per cent of Japanese exports went to advanced and 75 per cent to underdeveloped countries in 1951, it is not surprising to find that on balance Japan appears as a "capital-abundant" country in comparison with the rest of the world.

The authors further computed the capital-labor ratio of Japanese exports going to the United States in 1951 compared with the ratio for her total exports. The same ratio of the U. S. exports going to Japan compared with the ratio for United States total exports was also computed. The statistical results are shown in the following table:

	capital(α)	labor(β) (man-years)	α/β
Japan's exports to U. S.	1,026,387 (1951 yen)	18.8839	54,352
U. S. exports to Japan	2,741,786 (1947 dollar)	141.2169	19,415

It indicates that the capital-labor ratio of Japanese exports to the United States is lower than for her total exports (54,352 against 251,047). This seems to imply that Japan exported less capital-intensive goods to United States (in 1951, 15 percent of Japanese exports was directed to the United States) and relatively capital-intensive goods to countries other than the United States. This may be considered as supporting the generally held opinion that Japan's foreign trade is two-sided.

On the other hand, the capital-labor ratio of the United States exports to Japan is higher than for all U. S. exports (19,415 against 13,992).

To summarize, according to the Leontief study, because the United States imports capital-intensive goods, she appears to be a relatively labor rich country. But the Tatemoto-Ichimura study shows Japan's exports to the United States have a lower capital-labor ratio than her total exports. It means Japan is an even more labor rich country than U. S. A. but a capital rich country in comparison with underdeveloped countries, to whom 75% of her export went in 1951. If we accept both studies as valid,

we may conclude there must be some countries in the world which have relatively more capital than the United States.

Section 4 The Trade Models Reconsidered

As shown in the previous sections, both the Ricardian and Heckscher-Ohlin trade models have their shortcomings theoretically and the real world does not lend them support empirically. The theoretical shortcomings of course contribute to some degree to the empirical impracticability of these models. But their impracticability stems from two more basic issues, which apparently escape the attention entirely of the classical theorists. First, they fail to understand that the primary form of external trade is a trade of availability for unavailability. Second, they fail to understand that it is the world trade that dictates specialization, not the other way round.

(1) Availability For Unavailability

It can be safely assumed that each nation was isolated from the outer world at the very beginning, consuming what it could produce. There was no external trade at all. Later on, following introduction and development of means of transportation, peoples at different lands began visiting each other. These travellers saw things which they had never seen before in their own home countries. Chinese silk may be considered as one item of the pioneer group of things that came into trade internationally. These travellers bought some silk, say, from Chinese silk dealers, maybe just for purpose of showing off. It was of course a barter

trade. The traveller offered one product of his own country, say coffee, in exchange for silk. The exchange rate may vary from time to time, place to place and person to person, depending on:

(1) How much the traveller knows about silk's production cost.

(2) How much the Chinese dealer knows about coffee's production cost.

(3) The comparative eagerness of demand on both sides.

(4) The comparative bargaining power on both parties.

The exchange rate may favor one party at the great loss of the other. But eventually, it will settle down within the limits of production costs of both commodities. Because neither silk nor coffee has ever been produced in the other country, the exchange ratio based on production cost is usually derived in an indirect way. Say pork is a product common in both countries. Say, in China,

1 unit of silk = 2 units of pork.

In the other country

1 unit of pork = 3 units of coffee.

Then in the end, the exchange rate between silk and coffee will settle down at or around the ratio:

1 unit of silk = 6 units of coffee.

Note this is an exchange of availability for unavailability.

Later on, when means of transportation becomes further developed, peoples from different lands get together more easily and frequently. Trade expands in scope. Peoples began to sell

and buy goods--not only different goods but also similar goods of different costs. That is, from a trade of availability for unavailability, to a trade based on comparative production advantages.

But even trade in the present world is not entirely on the basis of production advantages.

Irving B. Kravis[1] has rightly pointed out that it is the availability of supply abroad and its unavailability at home that give rise to most commodity trade flows. It is not entirely the relative capital or labor requirements of the products (Heckscher-Ohlin model), nor the wage differences between two countries (Ricardian model) that have made trade. This is particularly true in the half of the world trade that consists of trade between the industrial areas, on the one hand, and primary producing areas, on the other hand. For the other half, which consists of exchanges among primary countries or among industrial countries, the availability factor plays as an important (if not more important) role as the capital-labor ratios in determining international trade flows.

To support his argument, he gives two examples:

(1) Despite the improvements in plant breeding and cultivation, wheat can be grown only under a limited range of soil

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[1] Irving B. Kravis, " 'Availability' And Other Influences On The Commodity Composition of Trade", Journal of Political Economy (April, 1956).

and climate conditions. World production is confined to two relatively narrow latitudinal bands around the globe. The more important of these includes most of the United States, southern Canada, Europe south of Norway, and Central China and northern India in Asia. The European and Asiatic portions of this band are densely populated; the American portion is not. The result is that Canadian and United States wheat is exported. (This is the case of availability from a generous natural endowment.)

(2) The United States' increase of its foreign sale of drugs and medicines between 1947 and 1952 was attributed to a large rise in the exports of newly developed antibiotics while exports of other drug and medicinal products declined. The world does not have to buy aspirin from the United States but dihydrostreptomycin and its successors are available in few other places.

Similarly, largely as a result of the development of three-dimensional pictures and wider screens, exports of U. S. film and equipment in the first quarter of 1954 were 55 per cent higher than in the first quarter of the preceding year. (These are the cases of availability from new-product development.)

On the other hand, recovery of production in western Europe between 1947 and 1952 probably accounted for the sharp decline in United States exports of foods and textiles that occurred during this period.

Technological progress may be made to fit into the framework of comparative advantage. One might argue that the United States has, for one reason or another, a relative abundance of high-

quality entrepreneurial leadership and therefore enjoys a comparative advantage in those products that require a high proportion of entrepreneurial ability -- that is, new goods. Similarly, differences in natural endowment may eventually be reflected through difference in productivity of capital, labor and other measurable factors. It is questionable, however, whether anything is gained by stretching the idea of comparative advantage to make it explain what can more easily be explained without it.

In short, a country may be exporting products not because it has a comparative advantage in producing them but because they are available at the moment only in the exporting country. Similarly, a country's imports may be largely dictated by the unavailability of the products in the importing country. For example, even the United States, with its avowed policies of more liberal trade, imposes quotas on competitive imports, with the result that a large share of the nation's agricultural imports consists of goods that are complementary to domestic agriculture rather than directly competitive with it.

(2) Trade and Specialization

Let us illustrate this point by the familiar two country two commodity example. Say Argentina and United States each produces two commodities, tire and wheat. Before trading, each produces tires and wheat in amounts sufficient to satisfy the wants of their own people. Both being contented with their mode of production, neither feels an advantage nor disadvantage of production

in any one item of the goods. It is through the introduction of foreign trade that production advantage (both absolute and relative advantage) comes to their notice.

Suppose the absolute advantage of productions is as follows:

Commodity	Argentina	U. S. A.
Wheat (bushels)	25	20
Tires	5	10

In this case the merchant from Argentina, who happened to visit the United States, found to his surprise tires were extremely cheap in the United States measured from the production cost in his home country. There, it takes 5 bushels of wheat to exchange for 1 tire. But in U. S. A., 2 bushels of wheat are enough to buy one. The merchant of course decided to buy wheat in Argentina and sell it in the United States for tires and make a huge profit from the transaction.

In the case of relative advantage of production, let us assume and consider the following table:

Commodity	Argentina	U. S. A.
Wheat (bushels)	15	20
Tires	5	10

The Argentine merchant would still like to buy wheat in Argentina and sell it in U. S. A. for tires. Because in Argentina, it takes 3 bushels of wheat to exchange for one tire. If he takes 15 bushels of wheat (worth 5 tires) from Argentina and exchanges them in the United States for tires, he gets 2.5 more tires (7.5 tires against 5 tires). There is still profit though

it is smaller than in the absolute advantage case.

Note that it is always the production cost at the home country that is relevant. In this sense, absolute and relative advantage are the same in effect. Absolute advantage is merely a special case of relative advantage.

In Argentina, producers continue, as usual, to produce both commodities. A part of her population grows wheat with the rest producing tires. But when more and more tires are brought home by merchants, the market price of tires is depressed. On the other hand, wheat prices go up. When this domestic price ratio change to one direction is definite, producers of tires will gradually and eventually shift to wheat growing. In the long run, Argentina will specialize in wheat production, given the other conditions.

The United States would specialize in tire manufacturing by similar line of reasoning.

Note that it is international trade which drives a country into specialization, not specialization that causes external transaction.

Prof. J. H. Williams[1] gives the matter a systematic analysis. He started his analysis by attacking the classical mobility premise, one of the foundations of the comparative cost. (The mo-

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[1] John H. Williams, "The Theory of International Trade Reconsidered", Economic Journal (June, 1929).

bility premise is that productive factors move freely within countries while they lack mobility internationally.) Williams pointed out that international trade involved a considerable international diffusion of capital, labor and enterprise at a time when internal mobility was slight. The reason is that an entrepreneur is frequently apt to think in terms of his industry rather than of political geography. This is increasingly true as industry and trade have become larger in scale. Oil, copper, gold, steel, textiles, rubber, chemicals, automobiles, telephone and telegraph, electrical power, agricultural machinery, and the match industry provide an impressive and ever increasing array of basic industries which have expanded in disregard of political frontiers. They represent in some cases the projection by one country into others of its capital, technique, special knowledge along the lines of an industry and its market, as against the obvious alternative of home employment in other lines. They represent, in other cases, an international assembling of capital and management for world enterprises ramifying into many countries.

On the other hand, even the United States, which presents, in comparison, a case of high internal mobility due to the relatively greater importance (and greater freedom from restriction) of the domestic market than the foreign, is far from realizing an approximate equality of either wages or prices, or returns to capital, as between different parts of the country. As to other countries, such as England, France, Belgium, and Germany, local diversities of all sorts have persisted for centuries. The im-

pediments to the movement of factors within the more backward countries are even more severe. Inferior organization of capital and labor, inferior domestic banking, inferior internal means of communication, inferior perception of economic opportunity are more important obstacles to free movement of domestic factors.

The conclusion is that the same profit motivation that moves goods tends to move factors of production across the boundaries of the countries and that the movement of capital, and to a less degree of labor, is likely to be more free from a more advanced to a less advanced country than is the internal mobility of factors in the latter.

International trade develops also because of lowered cost of transport, which results in expanding markets. To the extent that productive factors are mobile internationally, there must follow a geographical and social, as well as an industrial transformation of internal efforts. For example, in the nineteenth century, when England found it profitable to produce wheat and meat in Argentina, raw materials and foods in the United States and Canada, she produced them there by exporting capital for those purposes. Thus through specialization in production for world markets fostered by export of capital and labor from early colonial times down to the war of 1914, and by a free trade policy, England has been able to concentrate capital and labor on a small amount of land in "increasing return" industries, and to buy the products of "increasing cost" industries from abroad. But for specialization in world trade such concentration

of labor and capital on little land would not be possible. It is easy to see that England's capital and labor were products (results) of international trade itself, but for which they would not have existed in any comparable degree. So is England's specialization.

Therefore to the extent that productive factors are mobile internationally and that they may change over time qualitatively and quantitatively, a country should choose the direction of its specialization and trade by reference to wider criteria than merely its present factor endowment.

CHAPTER II

FREE TRADE AND NATIONAL WELFARE

It is often argued that the contribution of international trade to economic welfare arises from fulfillment of the optimum conditions of resource allocation. Without any increase in resources, or technological change, each country is able to enjoy a higher real income by specializing in production according to its comparative advantage and trading. Therefore, a country's access to a foreign market has a real income effect that is essentially the same as if there had been an outward shift in its production frontier.

In this chapter, it is going to show the argument that free trade helps to promote national welfare is much too exaggerated.

Section 1 The Wemelsfelder Study[1]

In 1956 and '57, the import duties of Germany were greatly reduced. In 1956, the duties on industrial products which ranged from 1 to 16% were lowered by 20% and those ranging from 17 to 25%, by 25%, while all others were reduced to 21%. As the duties on finished industrial products largely came within the category of 17-25% or exceeded this, the reduction for this group of products at the first round amounted to more than 25%.

In 1957 a second round of reductions took place with an all-round lowering of 25% per tariff item.

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[1] W. Wemelsfelder, "The Short-run Effects of the Lowering of Import Duties in Germany", Economic Journal (March, 1960).

Taking advantage of this opportunity, Prof. J. Wemelsfelder of the Netherlands gave a detailed analysis to this Germany's drastic tariff reductions, notably in the industrial sector. For, in his own words, he was apparently dissatisfied with discussions on the impact of the lowering of import duties which "are in general always in the abstract".

According to Wemelsfelder, it appears that in the period before the tariff reductions (1950-55) there was a reasonably constant relation between income and imports in Germany. Assuming y represents imports of finished industrial products and x represents national income, Wemelsfelder found the regression line for imports was $y = .022x - 19.6$. An appreciable deviation from the regression line occurred in the period from 1956 onwards following the great tariff reductions. The increase in imports is for the year 1957 estimated at DM 1,200 million of 1954 and for 1958 at DM 2,500 million of 1954. As investigation reveals the internal price-level in Germany did not rise more rapidly after 1953 than did the price-level on the world market, the possibility that imports have been stimulated on account of price divergence is ruled out. As taste, need, etc. did not show material change during this period, it is very unlikely that these accidental factors were at play in causing this increase of imports. There remains therefore the only explanation: the tariff reductions do indeed account for the extra rise in imports (i. e. in deviation from the trend.)

On the other hand, the production of industrial end-products

destined for the home market after the tariff reduction runs opposite to the trend of imports. The regression equation for the production of industrial end-products before tariff reduction is $y = 0.111x + 66$ (y being production and x national income.) The decrease of production (also as deviation from the trend) was valued at DM 2,500 million and 3,200 million for 1957 and 1958 respectively.

The relation between the increased imports and the decreased production is obvious. The larger imports could therefore be better accounted for by attributing them to the displacement of home production than by putting them down to increased consumption of industrial end-products due to the fall in prices. In other words, assuming that the figures given above are representative for the actual situation, the German tariff reductions seem to have had a great substitution effect and no effect, or but a slight one, on consumption.

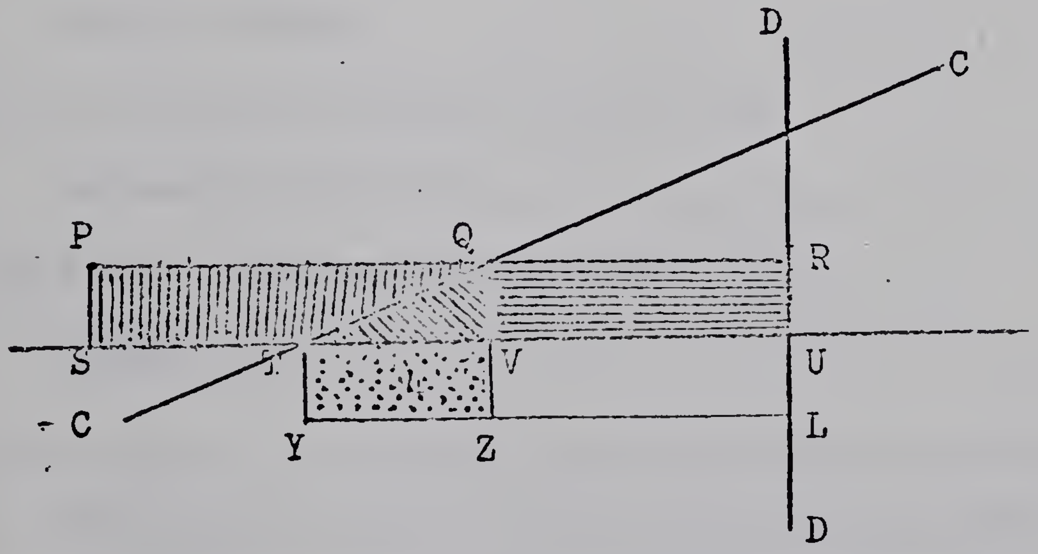

Fig. 2.1 Impact of tariff reduction in Germany.

As shown in Fig. 2.1, the demand curve DD has been drawn as a vertical line, indicating no important impact of the tariff reductions on domestic consumption. (A vertical demand curve

means demand elasticity is nil or almost nil.) CC is the total-cost curve for the Germany economy. PQ:QR represents the ratio between home production and imports before the tariff reduction; ST : TU represents that ratio after the reduction. RU represents the rate of the tariff (the total tariff being RL; $RU = \frac{1}{2}RL$).

A fall (RU) in the price-level owing to the lowering of import duties results in a loss (PSTQ) of producers surplus. Consumers, on the other hand, obtain a general gain in income from the fall in prices, a gain which may be equated to the extent of the price fall and which is represented by the rectangle PRUS.

The government suffers a loss of revenue due to the reduction of import duties equal to QRUV. On the other hand, however, it gains additional revenues of import taxes equal to TYZV owing to the expansion of imports. Eventually, then, the tariff reduction causes the following profits and losses to the German economy:

(a) Loss of producers surplus ....-PSTQ (1)

(b) Loss of revenue due to reduction of import duties ....-QVUR (3)

(c) Increase of revenue due to the expansion of trade ....+TYZV (4)

(d) Gain to consumers (through fall of price level ....+PSUR (1+2+3)

Total net profit to the German economy TQV + TYZV (2+4)

Since QV=VZ, the area of TQV+TYZV can be written as $\frac{3}{2} \times (TV \times QV)$.

We know the extent of the "extra" rise in imports (TV). In terms of DM of 1954 it amounted to DM 2,500 million in 1958. The

price fall (RU) being about 10%, the ultimate gain in prosperity amounts to:

$$\frac{3}{2} \times \text{DM } 2{,}500 \text{ million} \times 10\% = \text{DM } 375 \text{ million of } 1954.$$

This, compared with the national income in 1958 at roughly DM 200,000 million (likewise in 1954 prices), constitutes only 0.18% of that income. Even if we allow a very large margin of error of 100% or more, this amount is so small that one is justified in concluding that for a country of the size of Germany lowering of import duties has no important impact on welfare. The significance has often been grossly exaggerated by textbooks.

Note that Wemelsfelder's analysis is entirely static. He has purposely eliminated the results of normal economic growth from consideration.

Section 2 The Johnson Study[1]

As we have observed, Wemelsfelder discussed the gains out of trade from the side of import only. Furthermore, his discussion of the gain from import trade is only on the basis of reduced import duty rates. We should like to know what happens when trade is free entirely from control at all.

In an article entitled "The Gain from Freer Trade with Europe: An Estimate", Prof. Harry G. Johnson demonstrated the gains to be expected from freer trade between the United King-

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[1] H. G. Johnson, "The Gains from Freer Trade with Europe: An Estimate", The Manchester School (March, 1958).

dom and other European countries from both export and import side. He estimated the trade gains that would spring from a Free Trade Area as against a Common Market. He based his analysis on the Economist Intelligence Unit's study, "Britain and Europe". This volume gives estimates of the values of trade between the United Kingdom and Europe in 1970 in the presence and the absence of a Free Trade Area for thirteen major industries, which accounted for about 50% of U. K. exports to, and 25% of imports from Continent Europe in 1955.

On the export side, the gain under free trade arises from the opportunity to sell the products of the country's resources on better terms than under a system with tariffs. It could be measured by the loss of income that would result if tariffs are levied. The underlying theory is illustrated by reference to figure 2.2.

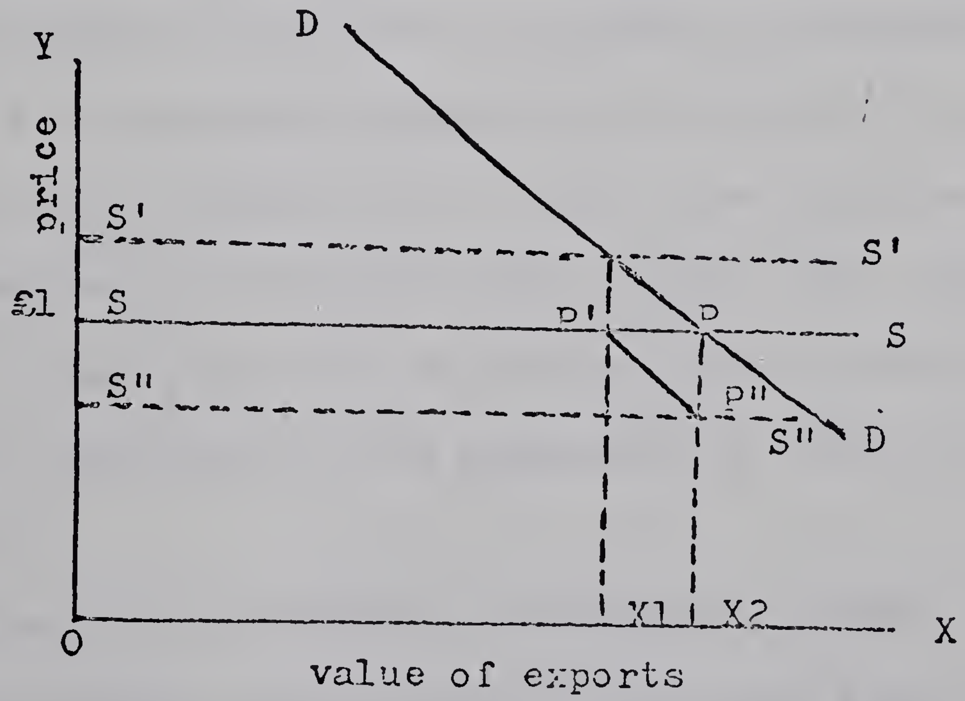

Fig. 2.2 Gain on exports from F. T. A. in U. K.

In the Figures, SS is the export supply curve of the products of a particular industry, measured in pounds' worth of UK's domestic resources; DD is the European demand curve. With a tariff of S'S the quantity exported is OX_1, with free trade it is OX_2. What has to be done to export OX_2 in spite of the tariff depends on the nature of the industry's products.

If these are perfect substitutes (the first assumption), the prices of all will have to be reduced until the new price plus the tariff is equal to OS: the supply curve becomes S"S" and the loss incurred in selling OX_2 is $SS''P''P = SOX_2P \cdot \frac{SS''}{OS}$, i. e. the total value of free trade exports multiplied by the proportion of the tariff in the final price.

If, on the other hand, the demand for each successive pounds' worth of output is separate and independent (the second assumption), either because discrimination between buyers is possible or because the products are distint, only the prices of the marginal exports will have to be reduced: the supply curve becomes SP'P" and the loss incurred is P'PP", which is approximately equal to $\frac{1}{2}P'P \cdot SS'' = \frac{1}{2}P'X_1X_2P \times \frac{SS''}{OS}$, i. e. half the value of the increase in exports under free trade, multiplied by the proportion of the tariff in the final price.

Based on data in "Britain and Europe", Johnson estimated the maximum possible gain is £192 million per year under the first assumption and £62 million under the second assumption. The detail is shown in the accompanying table.

Table 2.1

Estimated Maximum Gain On Exports From F.T.A.

Industry	Assumed C.M. Tariff Rate (%)	Total Exports to F.T.A. 1970		Additional Exports under F.T.A. as against C.M., 1970	
		Value (£m)	Maximum Loss Estimate (£m)	Value (£m)	Maximum Loss Estimate (£m)
Iron and Steel	10	70	6.4	25	1.1
Non-ferrous metals	10	40	3.6	15	0.7
Metal manufactures	17½	38	5.7	27	2.0
General engineering	17½	280	41.7	120	8.9
Electric engineering	17½	225	33.5	132	9.8
Chemicals	17½	125	18.6	88	6.6
Hosiery	20	20	3.3	15	1.2
Clothing	20	24	4.0	20	1.7
Passenger cars	30	187	43.2	149	17.2
Commercial vehicles	30	70	16.1	58	6.7
Cotton fabrics	17	17	2.5	13	0.9
Wool fabrics	17	50	7.2	31	2.3
Man-made fibre fabrics	20	38	6.3	34	2.8
Totals		1,184	192.1	727	61.9

On the import side, the gain from freer trade arises from the opportunity provided to consume imported goods in place of more expensive domestically-produced goods to which the purchaser has previously been directed by the tariff. This gain can be measured by the additional tariff revenue the Government could have collected if it had reduced the tariff on each individual item of the additional imports resulting from Free Trade just sufficiently to induce the purchaser to buy it. It will be approximately equal to the change in the value of imports from the Free Trade Area, multiplied by half the tariff rate previously levied. To this should add the estimates of the difference that a Free Trade Area as against a Common Market only would make to British imports from outside Europe. The underlying theory is illustrated in Figure 2.3.

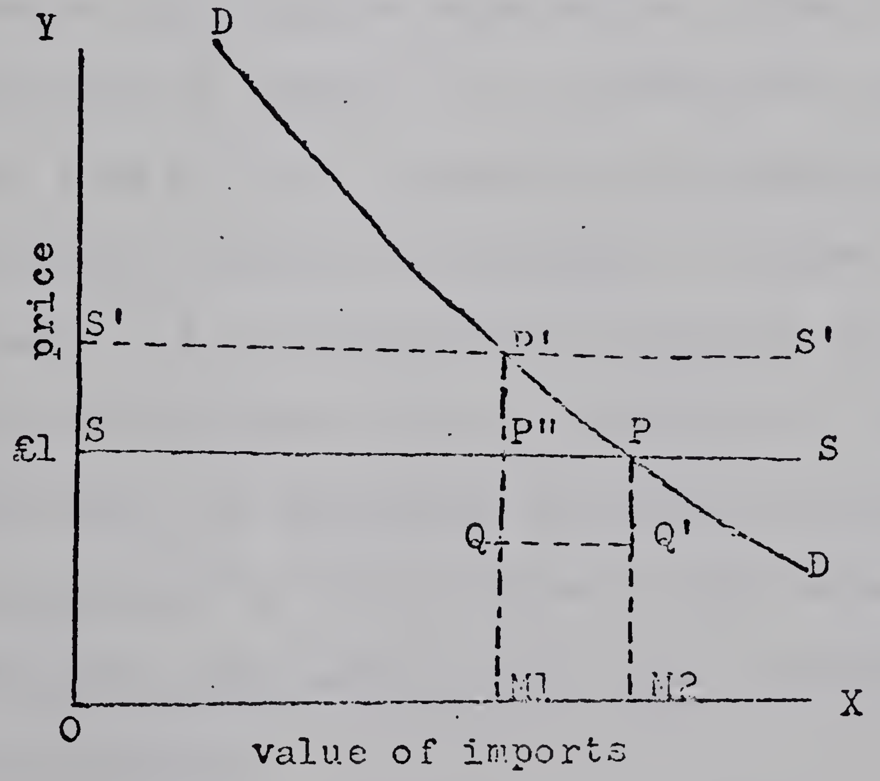

Fig. 2.3 Gain on imports from F. T. A. in U. K.

In the Figure, SS is the European supply curve of imports,

measured in pounds' worth, S'S' is that supply curve including the British tariff, and DD is the British demand curve. Elimination of the tariff increases imports from Europe from OM_1 to OM_2, resulting in a transfer from tariff revenue to consumers' surplus of SS'P'P" and an increase in consumers' surplus of P'P"P, approximately equal to $\frac{1}{2}PP'' \cdot P''P' = \frac{1}{2}P''M_1M_2P \cdot \frac{S'S}{OS}$, i. e. half the value of the increase in imports multiplied by the tariff rate. Estimates of the gains from this source based on the E.I.U. figures and assumed tariff rates are totalled in the order of £28 million per year.

To finance the extra imports, however, expenditure elsewhere has to be reduced by $P''M_1M_2P$, of which some part, say P"QQ'P, represents a reduction in government tax revenue. If it is expenditure on home-produced goods which is reduced, the re-absorption of the QM_1M_2Q' worth of resources in export production will generate new tax revenue which may be expected to replace the loss; but if it is expenditure on imports from non-European sources which is reduced, the loss of tariff revenue is not made good and must be deducted from the increase in consumers' surplus.

Conversely, if imports from non-European countries are complementary with imports from (or export to) Europe, the country benefits from the associated increase in tariff revenue. The gain is measured by the increase in the value of imports, multiplied by the applicable tariff rate. The gain is estimated at about £3.5 million.

The total gain on imports from Free Trade Area is of the order of £31 million per year. Please consult Table 2.2 for detail.

Table 2.2

Estimated Gain On Imports From F. T. A.

Industry	Assumed British Tariff Rate (%)	Additional Imports from F.T.A., 1970		Additional Imports from Other Countries 1970		Total Gain or Loss
		Value (£m)	Estimated Gain (£m)	Value (£m)	Estimated Gain (+) or Loss(-) (£m)	
Iron and Steel ..	10	35	1.8	-21	-2.1	-0.3
Non-ferrous metals	15	20	1.5	+30	+4.5	+6.0
Metal manufactures	20	12	1.2	-2	-0.4	+0.8
General engineering	17½	22	1.9	+3	+0.5	+2.4
Electrical engineering	17½	100	8.8	0	0	+8.8
Chemicals	17½	24	2.1	-12	-2.1	0
Hosiery	20	9	.9	+2	+0.4	+1.3
Clothing	20	7	.7	+1	+0.2	+0.9
Passenger cars ..	30	32	4.8	0	0	+4.8
Commercial vehicles	30	1	0.2	0	0	+0.2
Cotton fabrics ..	17½	10	0.9	+6	+1.0	+1.8
Wool fabrics	17½	5	0.5	+1	+0.2	+0.7
Man-made fibre fabrics	22½ +11d. per lb.	12	2.5	+3	+1.3	+3.8
Totals		290	27.7	+11	+3.5	+31.2

Putting the two sides of the picture to-gether, Johnson arrived at a maximum possible gain on the export side of £62 - 192 million per year, and a gain on the import side of £31 million a year, for the industries represented. These figures suggest orders of magnitude for the economy as a whole of, say, £125 - 400 million as the maximum gain on the export side, and £100 million as the gain on the import side. If the minimum figure for the maximum export gain (i. e. £125 million a year) is taken as a (probably excessive) approximation to the likely gain on that side, this would imply a total gain of the order of £225 million -- a difference of about 1% on what the Economist Intelligence Unit estimates the Gross National Product is likely to be in 1970. This figure is indeed very rough but because of the way it is arrived at the order of magnitude is unlikely to be altered much.

Section 3 The Young Study[1]

Dr. John H. Young, in "Canadian Commercial Policy", measured what he called the "cash cost" of the Canadian tariff. He argued if the Canadian Government currently used subsidies rather than a tariff to encourage import-replacing production, it would not be difficult to discover the cash cost of the assistance. There would be a definite sum of money passing through

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[1] J. H. Young, Canadian Commercial Policy (Royal Commission on Canada's Economic Prospects), 1957.

the federal treasury each year. Audited accounts would be available and it could be stated with certainty that the cash cost of the subsidy was so many hundred million dollars. Since in general the Canadian Government uses a tariff rather than subsidies to assist import-competing industries, the cash cost of the Canadian tariff must be estimated from either the expenditure side or the production side. An estimate made from the production side, however, requires more information on the interrelations among and within industries, Young chose to estimate the cash cost from the expenditure side.

In making the estimate of the cash cost of the tariff, a comparison is made between the amount spent on purchasing the products of protected industries and the amount which the same quantity of goods would have cost if Canadians had been able to purchase freely in foreign markets. (Young's method is actually an application of the excess cost approach outside Australia. For excess cost approach, please see the next section.) In most countries it would have been difficult to find many domestic products which were fully comparable with those produced in other countries. Canada is almost unique in that it produces a large number of protected articles which are virtually identical with those produced in the United States, the chief alternative source of supply. In these cases, no serious problems were encountered in ensuring comparability, and the task of collection was eased by the fact that many of the Canadian producers are subsidiaries of American companies.

The estimated cash cost of the Canadian tariff in 1954 by categories of expenditure is shown as in the following table:

Table 2.3

Estimated Cash Cost of the Canadian Tariff in 1954

	million of dollars
1) Food	90 - 95
2) Tobacco products	30 - 35
3) Alcoholic beverages	9 - 11
4) Recreation and reading	10 - 12
5) Clothing, footwear, and personal furnishings	95 -110
6) Household furnishings and operations	95 -110
7) Household electrical appliances, radios, TV sets	34 - 38
8) Personal care	13 - 14
9) Medical, dental, pharmaceutical	27 - 30
10) Gasoline and oil	9 - 11
11) Automobiles	72 -105
12) Construction	77 - 92
13) Machinery and equipment	100 -150
Total	610 -753

The cash cost of the Canadian tariff amounts to $0.6 billion to $0.75 billion or about 3.5% to 4.5% of gross private expenditure net of indirect taxes.

It is believed the cash cost is underestimated.

(1) The year for which the estimate of the cash cost of the tariff was made was 1954. This year was selected by Young as the most recent one for which sufficient information was available (Young's study was made in 1957); but since the level of output in most protected industries in Canada was lower in 1954 than in 1953, 1955 and 1956, it should be recognized that the estimate for 1954 is lower than would be similar estimate made for any one of the other three years.

(2) The estimate is not a comprehensive one but relates only to the private sector of the economy; that is, governmental purchases are omitted. This is a serious omission, since governments are not only heavy purchasers from protected industries, but under existing methods of government procurement they give an additional preference to domestic producers.

(3) It is generally assumed that most services are unaffected by international trade and it is usually thought that wholesale and retail trade can be classed with this group. In the case of a comparison between the United States and Canada, such an assumption is not warranted. It has been found that in some instances the absolute size of distributive margins is greater in Canada than in the United States. Therefore, that part of cash cost of the tariff arising in the distributive sector has apparently been omitted.

(4) In general, Young restricted price comparisons to Canada and the United States, although where it was obvious that the cheapest source of supply was a country outside North American,

price comparisons have been made between Canada and that country. There are some less obvious instances, however, where foreign countries might be of some significance as suppliers and their inclusion in the price comparison would have widened the gap between the Canadian protected price and the lowest available world price. It has not been included because it is not possible to obtain price data for overseas countries comparable in quality in those less obvious instances to that obtained for the United States.

All these four factors have tended to give the final estimate of the cash cost of the tariff a distinct downward bias. The inclusion of government expenditure and retail distribution would raise the estimate considerably. According to Dr. Young, it is likely that a comprehensive estimate of this kind made for 1956 would be of the order of $1 billion.

Section 4 The 1929 Enquiry of Australia[1]

Perhaps the first major attempt to measure the cost of a tariff was made in Australia in 1927-29. The Report[2] of the Government-sponsored enquiry into the Australian tariff was published in 1929.

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[1] A. J. Reitsma, "The Excess Costs of A Tariff and Their Measurement", The Economic Record (Dec., 1961).

[2] The full title of the Report is: The Australian Tariff -- An Economic Enquiry by J. B. Brigden, D. B. Copland, E. C. Dyason, L. F. Giblin and C. H. Wickens.

This may be referred to as "the 1929 Enquiry". The reporting committee is sometimes referred to as the "Brigden Committee"; their way of measuring the excess cost as the "Brigden Method".

The technique used, in the 1929 Enquiry, of measuring the cost of protection, may be explained briefly as follows. The excess cost, referred to in the 1929 Enquiry, consisted of the excess of the market value of the protected output over the cost of equivalent imports, defining values at the given exchange rate.

For the purpose of roughly measuring these excess costs the authors of the 1929 Enquiry divided protected home production into three classes, according to whether the contribution of imports to the total of the goods consumed was high or low. Where imports contributed a substantial proportion of the quantity of any particular good consumed, the excess cost was calculated on the basis of the full amount of the duty. Where imports were relatively small, the excess cost for a class of good was calculated on the basis of half the amount of the duty. Where much of the output was naturally sheltered, the excess cost was put at one-third of what the application of the full-duty formula would yield. It is clear that the 1929 Enquiry regarded the excess cost of the tariff as measurable in principle. The method used was that of multiplying the volume of home-produced protected output by the full or a fraction of the duty levied on these goods. The excess cost thus found amounted to £36 million on a total value of protected production of £150 million.

The calculation was on the basis of all production using

existing protection. However, the authors of the Enquiry realized that at a lower free-trade price and cost level some industries, formerly protected, might become competitive. This potentially surviving industry, which they estimated to represent £75 million worth of protected output, they found to carry only £8 million of excess cost, leaving £28 million excess cost of output needing protection under all circumstances.

It was W. M. Corden who pointed out the Brigden Committee may overstate the cost of the tariff. Among other things, it is possible, says Corden, that the costs as calculated may contain elements of rent. For example, if labor is relatively more scarce in the protected industry it may receive a higher wage than under free trade. Also, there may be what Corden has called a "volume" effect leading to an overstatement of cost. Such a general effect may occur if balance of payments adjustment or maintenance of full employment required a further cost reduction, making import-competing industry more competitive. By ignoring this possibility, the Brigden method could possibly overstate the volume of output in need of protection.

Moreover, the meaning of the "excess cost" of protection must be weighed against possible gains. If the main benefits of protection are benefits of a nation's economic growth through the existence of "external economies" of potentially advantageous industries, the loss must be assessed against this benefit. (For a discussion of external economies in the context of tariffs, please consult Section 4 of Chapter III of this paper.) A low "excess cost" may go with a low gain and a high "excess cost" with a

high gain. It all depends on how much scope there is for the realization of "external economies" and how much time is involved. The "excess cost" may be low but the actual tariff may fail to stimulate that production which would yield the richest harvest of "external economies" in the nearest future. A different tariff, with a much higher "excess cost", may achieve such a stimulus and thus lead to ultimate "economic" gain.

As a digressional note, whenever a government imposes a tariff of certain percentage, a subsidy of the same size will in general serve the purpose. There are, however, slight differences between using of a subsidy and a tariff: (1) In the subsidy case, the price of the commodity is unaffected and therefore its consumption remains unchanged. In the tariff case the price does change and consequently the consumption is reduced. (2) The subsidy is provided by tax revenue, and the burden in effect prorated among the taxpayers. In the case of a tariff the power to tax is in effect delegated to the industry, and the assistance is provided through an increase in the price of the commodity. It is the consumers of the commodity who pay in this case. (3) In the case of a subsidy, there would be a definite sum of money passing through the national treasury each year. Audited accounts would be available and it could be stated with certainty that the cash cost of the subsidy was so many hundred dollars. In the tariff case, the cost is less obvious.

But the similarity of the two techniques should be of greater importance. Insofar as a tariff encourages the replacement of imports by domestic production, it has an effect essentially similar

to that of a subsidy to an import-competing domestic industry. In stimulating growth of those industries in which the countries which are first comers have a tremendous advantage over latecomers, tariffs, subsidies and what not yield almost identical results. When a tariff is used, however, the government is not required to raise the revenue to provide the subsidy, and the protected industry is not placed in the position of receiving assistance in a very direct and unmistakable fashion. Since both parties directly involved can minimize their discomfort by using a tariff than a subsidy, it is perhaps not surprising that tariffs tend to be the preferred instrument.

Section 5 Free Trade Versus Tariff

Shortly after the Second World War the movement towards a European Common Market began. The six Common Market countries, France, Germany, Italy, Holland, Belgium and Luxembourg, were to remove all tariffs on trade with each other. Professor Verdoorn estimated the gain to the six European Common Market countries of the removal of all tariffs on trade between themselves to be something of the order of $\frac{1}{20}$ of 1% of their national income.[1]

In addition, as we have described in Section 1 and Section 2, Professor Wemelsfelder estimated the gain to Germany from

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[1] For the best account of Verdoorn's work, see T. Scitovsky, *Economic Theory and Western European Integration*, London: Allen & Unwin, 1958.

major tariff reductions in the years 1956 - 7 to be in the order of less than 1% of German national income and Professor Harry Johnson estimated the cost to Britain of staying out of the Common Market to be a loss equal to approximately 1% of its national income. We complete the argument by citing Dr. John H. Young's measurement of what he called the "cash cost" of the Canadian tariff. According to his estimate, it is around 4% of Canadian gross private expenditure net of indirect taxes.

These measures came as a surprise to those who, as passionate free traders, believed the loss from existing tariffs to be large. There are, however, good general reasons for believing that the orders of magnitude of loss from existing tariffs to be around 1% of the national income. Assume typical tariffs on manufactured goods are generally in the order of , say, 20%. This means that industries from one to twenty per cent less efficient than foreign competitors will be protected by these tariffs. In other words, some tariff-protected industries would be 20% less efficient than foreign competitors, but others would be only 1% less efficient, and their average inefficiency would be of the order of half the tariff rate. Assume again typically, not much more than 10% of a country's resources would be devoted to producing behind tariff walls. This means that 10% of a country's resources would be producing 10% less efficiently than if there were no tariffs, which would make a reduction in national income of something in the order of 1% in the most usual cases.

In another article[1], Professor Harry G. Johnson used the following diagram to analyse why the cost of a tariff is generally insignificant.

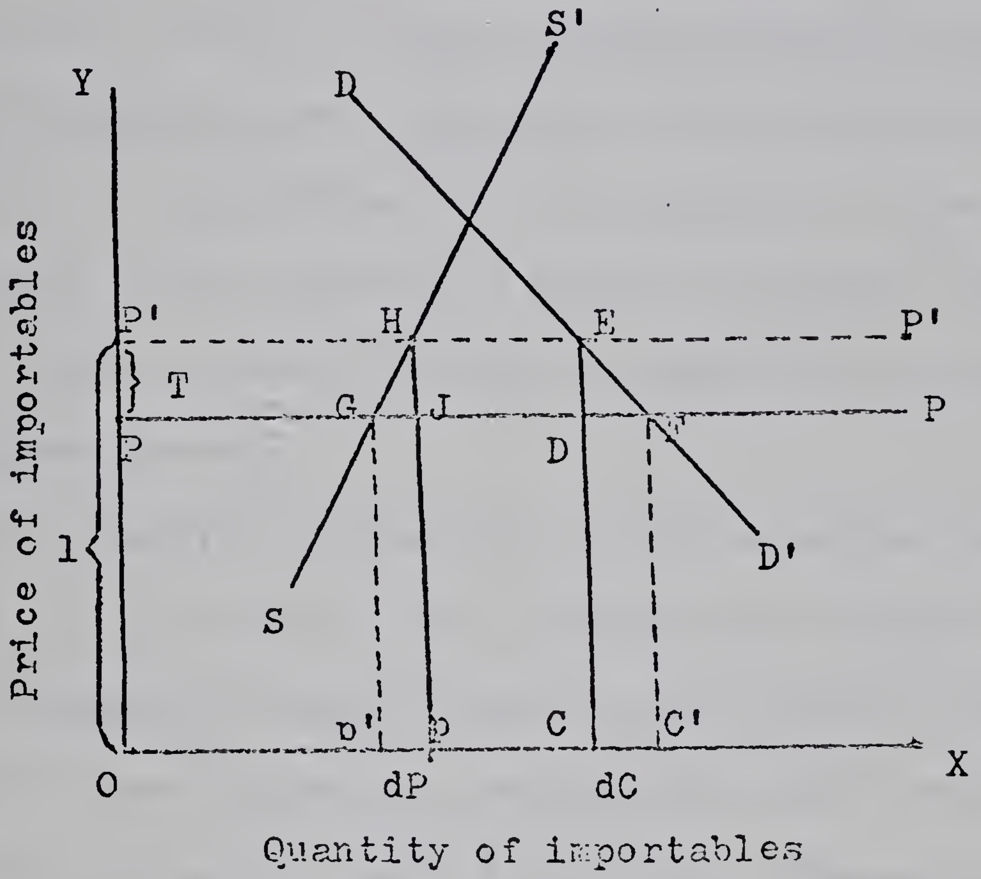

Fig. 2.4 Production and consumption costs of a tariff.

In Figure 2.4, quantities of importable goods are measured along the X-axis and the price of imports in terms of exports is measured along the Y-axis. Units of quantity are chosen so that the domestic market price of imports including the tariff (OP') is unity. This has the advantage that the quantity and value (including import duty) of imports are equal and the excess (PP') of the domestic price (OP') over the foreign price (OP) represents the proportion T by which free trade will reduce the domestic

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[1] H. G. Johnson, "The Cost of Protection and The Scientific Tariff", Journal of Political Economy, (Aug., 1960).

price. This proportion T equals $\frac{t}{1+t}$, where t is the tariff rate expressed as a fraction.

DD' is the constant-utility ("compensated") demand curve, or "marginal valuation curve", for the utility level reached with the tariff and SS' is the general-equilibrium supply curve (the transformation curve, expressed as a relation between relative price of importables and the quantity of them produced domestically). These curves are drawn as straight lines for geometrical convenience; they may be regarded as approximations to curvilinear curves.

With the tariff, consumption is OC, domestic production Op, imports pC. If the tariff were removed and consumers were simultaneously deprived of export goods to the extent required to keep their utility level constant, consumption would expand to OC', and domestic production would fall to Op'. Consumers' surplus would be increased by PP'EF. Of this, PP'HG would be offset by a reduction in producers' surplus, and HJDE by the loss of import duties formerly collected. The remainder, consisting of GHJ and DEF, represents the increase in the value of production and the reduction in the cost of consumption made possible by free trade, which must be extracted if utility is to remain constant; that is, GHJ is the production cost, and DEF the consumption cost of production.

The production and consumption costs of production, GHJ and DEF, can be expressed as $\frac{1}{2}TdP$ and $\frac{1}{2}TdC$ respectively, where dC is the increase in consumption and dP the decrease in domestic pro-

duction resulting from (compensated) tariff elimination.

The size of the tariff cost is evidently determined partly by the elasticity of the supply and demand curve. If both curves are highly elastic, the protective cost will be large; if inelastic, small. It is safe to say, cases are very rare when both elasticities are perfectly (or highly) elastic.

The areas GHJ and DEF can be estimated for any importable good from data on prices, quantities and elasticities. When there are many goods, we may measure GHJ and DEF for each of them and simply add up the results to get an estimate of the total cost of a whole set of tariffs. (Though there are several reasons for doubting the adequacy of obtaining the total tariff cost by simply adding up individual items, the result of such a crude procedure would be an acceptable approximation).

Since tariff rates are usually below 50%, area DEF is likely to be a small portion of the national income because its calculation involves multiplying together for each commodity four fractions, of which one is $\frac{1}{2}$ and the others are likely to be substantially under $\frac{1}{2}$. This will be so unless high elasticities of demand, high tariffs and a high proportion of expenditure on imports all go together.[1]

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[1] According to H. G. Johnson, in another article "The Costs

Similarly one would expect GHJ to be small relative to the national income.

In this chapter we have done no more than to outline some important empirical studies on the cost of protection, to show that in the past the cost of the tariff may have been overestimated. If it can be believed that the cost associated with even a considerable tariff will normally be low in terms of a nation's income, this has important policy implications. It could be argued that even if the tariff does not help, it will not hurt much. We now turn to the positive values of tariffs in the next chapter.

(continued)
of Protection and Self-Sufficiency", Quarterly Journal of Economics (1965), both the total gains from international trade and the cost of protection are likely to be relatively small in the large advanced industrial countries, owing to their relatively flexible economic structures, probably high elasticities of substitution among the goods on which this consumption is concentrated and relatively low natural dependence on trade; while they are likely to be appreciably larger, relative to maximum potential national income, in the smaller and less developed countries, whose economies tend to show the opposite characteristics. Johnson's argument can be reversed by saying that the cost of protection is likely to be smaller in underdeveloped countries than in small industrialized ones because the wants of the peoples in underdeveloped countries are also underdeveloped, peoples in underdeveloped countries are more used to subsistence living, etc. Anyway this is a complex problem. No conclusions could be reached without any empirical studies.

Chapter III

An Inquiry into the Causes of International Trade Regulations in Underdeveloped Countries

Section 1 Free Trade Decreases World Production and Welfare

The German writer, Friedrich List, suggested that a nation as a rule must pass through a number of stages of economic development. In the first stage a nation is largely agricultural and gets manufactured goods in return for exports of foodstuffs and raw materials. A tariff would retard economic development under these circumstances. The second stage is characterized by domestic manufacturing still in an infant state. It is in this situation that a tariff is helpful as a protection against competition from abroad. The third stage is reached when the home market is largely supplied by domestic industries. Here, again, protection may be useful, but it should be carefully restricted because home industries are stronger competitively. In the fourth and final period a nation has become an exporter of manufactured goods as well as agricultural products, and, therefore, does not suffer from outside competition. It is a mature country and does not need to use the protective tariff; it should adopt a free trade policy.

It is crystal clear from List's argument that free trade is good only for advanced industrial countries whereas protection is often regarded as an acceptable and practical policy to all less developed countries. But, according to List, protection

had to be moderate and not exceed 20-30%.[1]

The broad historical record suggests that protectionism has accelerated economic development. Practically all countries that have entered upon economic development since the original industrial revolution in England have done so behind a protectionist wall. In the case of Soviet Union, the economic development has been achieved by isolating entirely from foreign commerce by autarkical state control. The United States had high tariffs from 1818 to 1833 and from the Civil War (1861-65) on. France had high tariffs from 1808 to 1860 and Germany from 1844 to 1860 and after 1879. The period of low tariffs after 1860 in both France and Germany was a period of rapid economic growth; but development must have begun and taken root before 1860, and Germany's growth after 1879 was also very rapid.

Even the General Agreement on Tariffs and Trade, which aims at promotion of multilateral trade and the reduction of tariffs throughout the world, provides for exceptions to the general policy of the reduction of tariffs by member nations. The major nations recognized, from practical considerations, the validity of the argument for protection of industries in nations that are

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[1] Friedrich List, National System of Political Economy, trans. Sampson S. Lloyd, New York: Longmans, Green & Co., 1904.

as yet underdeveloped. The argument for a protective tariff to promote economic development is, therefore, of more than historical interest.

It is often argued that through free trade, without any increase in resources, or technological change, each country is able to enjoy a higher real income by specializing in production according to its comparative advantage and trading, and that a country's access to a foreign market has a real income effect that is essentially the same as if there had been an outward shift in its production frontier. However, just the opposite position is maintained in this thesis, that an extreme adherence to the theorists' suggestion will decrease, not increase, world welfare.

The comparative advantage principle is a conclusion from long run static general equilibrium theory. However, in the long run, no fixed factors of production are recognized. Then it is obviously impossible to rank commodities to be produced and traded along the lines of comparative advantage when the comparative advantage of each country itself is subject to change as time passes. In other words, there may be a domestic misallocation of resources from the standpoint of maximizing output over time, even though there is optimal allocation from the standpoint of achieving the gains from trade in each single period. It is then not entirely wrong to argue that the theory of comparative advantage is limited to a given once-for-all set of conditions, and that free trade is favored by developed countries whose

manufacturing industry is in no danger from foreign competition. It is a well known fact that competition begets progress and that a world without competition, in which established privileges are strongly guarded at all costs, is not progressive. The dictates of comparative advantage may lead only to relative stagnation in developing economies.

If Alexander Hamilton (1757 - 1804, American stateman and writer on government) had not argued against free trade for the sake of economic development in the United States when he submitted to the House of Representatives his Report on Manufactures in 1791, there might not have been a wealthy and strong U. S. A. of to-day. There are other countries today which may have been endowed with rich natural resources and which may face the same situation as did the United States in 1791. It is certainly a great loss to the mankind if they are deprived of the opportunity of further development.

Japan has abundant labor and capital but lacks raw materials. The static theory of comparative advantage offers no reason to believe that Japan should develop textile, steel, chemical industries, etc., because that country lacks their basic ingredients. But as a matter of fact, it has developed. One could perhaps net out the import content of exports and calculate comparative advantages on the basis of values added. But the question of whether it is profitable to import raw materials for manufacturing into particular exports depends partly on the price of complementary labor and capital. If Japan is able to accumulate a sufficient amount of capital, and to train its people to learn

various industrial skills and techniques, there is no reason to believe that other nations cannot do the same. As a matter of principle, it would be easier to accumulate capital in a country that is richly endowed with natural resources than in a poor country, but Japan has shown that rich natural resources are not necessary to development. Speaking of a race as a whole, it is hard to believe one people is more talented in learning industrial skills than the others. Given the opportunity, every country is equally able to develop as far as labor and capital are concerned. But man can still do very little, if anything, to increase natural resources. (What he can do is just to open up and develop the existing ones.) That is why Japan, with capital and labor, must draw its raw materials from neighboring countries.

It is argued in favor of Japan and the like that most manufacturing industries are to a very considerable degree "footloose". They are not tied down to particular localities or countries by the presence there of the raw materials or fuel they use. It is the location of labor, special skills, capital, enterprise, and markets, rather than that of mineral or climatic resources, which is decisive over most of the industrial field.

Speaking of efficient allocation of resources, it is certainly more advantageous to establish factories as close as possible to the localities of the raw materials or fuels they use.

This is what Carey called the close proximity of producers and consumers.[1] In other words, all industries are more or less "materials-oriented". It means industries can advantageously locate at the source of the raw materials. Then the countries who are endowed with natural resources must have absolute advantages over those who depend on supply of raw materials by other countries, provided that in the country capital can be accumulated, skills can be built, markets can be created, etc. Because raw materials are used in such large physical quantities per unit value of finished product, the cost of bringing them to the factory is a substantial part of the value of output.

Now, compare these two cases. The first is that raw materials are brought from the underdeveloped countries to the developed ones for processing and manufacturing and the finished goods are then sent back to the underdeveloped countries. The second is that the underdeveloped countries do their own manufacturing right at the spot where raw materials are available and then ship some of the finished products to the other parts of the world. Transport costs may be much heavier in the first case, not only because they involve two way transport (raw materials

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[1] Henry Charles Carey, Principles of Political Economy (three volumes), Philadelphia: J. B. Lippincott and company, 1858 - 1860. List and Carey have often been called the twin exponents of protectionism in the earlier period.

from underdeveloped to developed countries and finished products in the opposite direction) but also because of the bulkiness of raw materials. Clearly, the process with less transport costs is, other things equal, more advantageous in resource allocation from the view point of the entire world. The underdeveloped countries may be fully justified if they attempt to stimulate manufacturing within their boundaries by an export tax on all raw materials or by a tariff on manufactures.

Of course we realize the precariousness of our assumption that capital, skills, markets, etc., can be equally made available in all underdeveloped countries. The fact that in this century only Japan has been able to come out as a developed country from the underdeveloped status seems to deny the truth of the assumption. From underdeveloped to development is a most painful journey. A country's ability to develop has a lot to do with its political system, religious belief, institutional arrangements, etc. Economic growth also depends on the people's attitudes to work, to wealth, to thrift, to having children, to invention, to adventure, to strangers, and so on, and all these attitudes flow from deep springs in history and in the human mind. That is to say, Japan's success and other underdeveloped countries' failure in industrialization lies primarily in those non-economic factors. It has little or nothing to do with economic advantage and disadvantage.

Section 2 The Fallacy of Terms of Trade Argument

It is said that, over the short period, a nation's external

terms of trade may vary as a consequence of changes in commercial policy, exchange rate variations, unilateral transfer payments, or cyclical fluctuations. Over the long period, the determinants of changes in the terms of trade are associated with structural variations in production and consumption.

There are five types of economic development.[1] Each exercises different influences over the offer curves through production effects. They are: (1) neutral production effect; (2) export-biased production effect; (3) import-biased production effect; (4) ultra-export-biased production effect; (5) ultra-import-biased production effect. In addition, there are also effects of economic development on the pattern of consumption. We combine the various production and consumption effects to get the following over-all development biases.

We assume there are two countries, H (home country) and F (foreign country). It is said the external terms of trade between these two countries are dependent on their respective internal degrees of economic development. The conclusions can be summarized under three situations:

(1) When development occurs in both H and F and when total development bias in each country is neutral, the terms of trade

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[1] For a detailed account of different production and consumption effects, please consult G. M. Meier, International Trade and Development, New York: Harper and Row, 1963.

will deteriorate for the country that has the higher rate of development.

(2) When development occurs in both countries and when in each country development is ultra-export-biased, or export-biased, or import-biased, the terms of trade deteriorate for that country which has the greater rate of development.

(3) Assuming that development occurs only in country H, we can summarize the various changes in H's commodity terms of trade, according to the different total biases in development, as follows:

Type of Total Bias in Development	Direction of Changes in Commodity Terms of Trade
neutral	deterioration
export-bias	"
import-bias	"
ultra-import-bias	improvement
ultra-export-bias	deterioration

From the table, it is seen four out of five cases the developing country's terms of trade will deteriorate simply because it is engaging in economic development.

A combination of these situations will give one the impression that the more a country's economy develops, the more the country's terms of trade deteriorates. Does it follow, then, that the best thing an underdeveloped country could do is to remain underdeveloped? Further, should an economically developed country

stop where it is, lest its external terms of trade deteriorate?

It may be argued that economic development itself has the effect of increasing factor supply and promoting technical progress which will raise the country's real income by the amount of the change in output at constant prices. In other words, the real income will be increased through economic development to such an extent as to more than offset the losses springing from deterioration of terms of trade due to economic development.

But this is not the whole story.

It has been argued that the type and rate of development may cause so severe a deterioration in the terms of trade that the gain from the growth in output is more than offset by the loss from adverse terms of trade. This possibility has been formally formulated under the title "immiserizing growth".[1] Fortunately, the practical bearing of the "immiserizing growth" is very limited. Nevertheless, the analysis has uncovered a distressing possibility for those underdeveloped countries who are seeking economic growth.

But it seems this whole big piece of argument is not well founded.

For a single country, the world market of any commodity is

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[1] J. Bhagwati, "Immiserizing Growth: A Geometrical Note", Review of Economic Studies (June, 1958).

very large relative to the size of the country's foreign trade, unless the country is the chief supplier on the world market or constitute a large part of the world market for its imports. Cases in which a country could exercise sufficient monopolistic or monopsonistic power to influence its terms of trade are rare and should be treated as exceptions. Each individual country should regard world market price for any product as a given datum, to which each country must adjust itself, although the said world price is the result of the decisions of all countries in the market.

There is only one price in the international market for a specific commodity at a specific moment of time. This unique price is the result of the past and its change is determined by the interrelations of demand and supply of the homogeneous product in question as well as its substitutes and complements among different countries. The world price of a specific commodity should be identical in all countries after deduction from it the necessary transport costs. In other words, each nation is only a price taker. Under the given world price, each country does its best in arraying domestic factors of production in the most efficient way.[1]

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[1] Marshall was firmly convinced that a country normally faces a highly elastic reciprocal foreign demand. He concluded an inelastic reciprocal foreign demand facing any country was unthinkable in nearly all practical trade situations. It was Marshall's contention that in the real world, where a country faces many competitors in its export trade, the situation would, with ex-

The foreign offer curve, of any commodity, facing any home country, is the aggregate offer curve of the entire rest of the world. The foreign offer curve is so large in size that the curvature of that part of the curve relevant to the home country's curve can be regarded as almost a straight line. Figure 3.1 illustrates the offer curves between any two countries of about equal size. This is an unrealistic situation. In the practical world, each country is rather facing a foreign offer curve depicted by Figure 3.2.

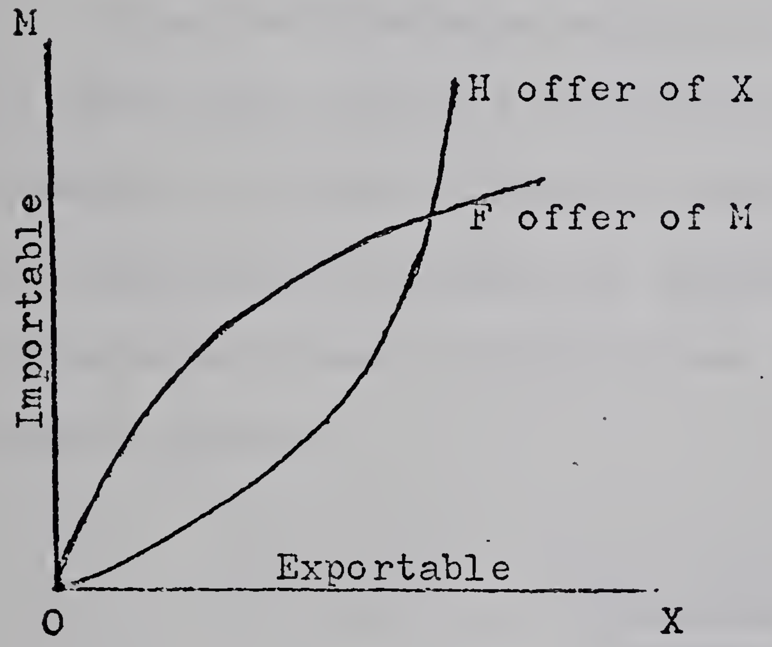

Fig. 3.1 Offer curves between 2 countries.

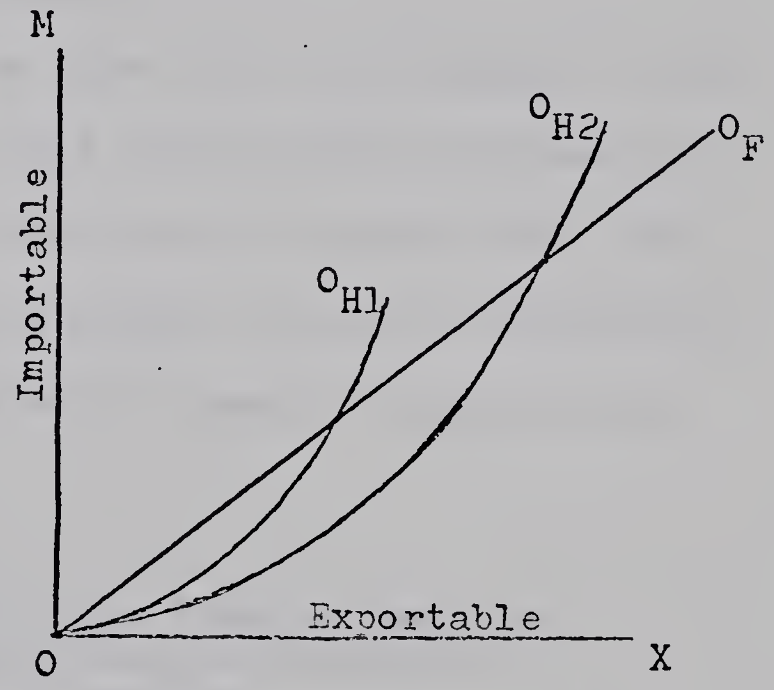

Fig. 3.2 Offer curves between any country and rest of the world.

(continued)
ceptions, nearly always be that a foreign country will not exchange anything with the home country at less than the existing exchange ratio. For example, suppose the exchange ratio under free trade is one ton of Australian wheat for two bales of English cloth. At any ratio less than this, England will not exchange any cloth for wheat with Australia. Instead, England will trade with other nations at the established ratio. In other words, English demand for Australian wheat in terms of the quantity of cloth is completely elastic. So is Australian demand for English cloth. See Alfred Marshall, Money, Credit and Commerce, London: Macmillan, 1923.

As shown in Fig. 3.2, foreign offer curve OF is almost a straight line. When the offer curve of country H is OH_1, the terms of trade for country H is represented by the slope of OO_F. When H expands its production and increases export of exportable X as a result of economic development, the home offer curve shifts outward to OH_2, and the terms of trade remain the same as before. (Of course, a country's commodity terms of trade may vary from time to time. This is the result of over-all fluctuations of world price of a specific commodity, effected through the aggregated changes in world production as well as consumption.)

From the foregoing analysis, we find that it is usually wrong to claim that economic development will deteriorate the developing country's external terms of trade. The truth is rather that terms of trade are more likely to remain unchanged. Given the neutrality of terms of trade, the gain from economic growth is proportional to the growth.

Section 3 Trade Regulations Promote Economic Development Through Efficient Resource Allocation

It was a standard assumption of the Classical international trade theorist that, between occupations within each trading country, factors of production are perfectly mobile. But mobility between occupations is imperfect as a rule in underdeveloped countries.

In a book entitled The Theory of Protection and International Trade, Mihail Manoilesco contended that in underdeveloped countries

labor is as a rule less productive in agriculture than in manufacturing.[1] Hence manufacturing should be stimulated by means of protection. More recently, Manoilesco's theory has been interpreted in the sense of a divergence between private and social cost.

It is claimed that the existence of underemployment or disguised unemployment in the agricultural sector of an underdeveloped country brings about a condition in which private cost, on the basis of which comparative advantage calls for exports of agricultural products and imports of manufactures, is unrepresentative of social costs. In the agricultural sector, private cost is too low, because wages are depressed; in industry, private cost is too high, because manufacturers pay unduly high wages which would be lowered if the disguised unemployed freely competed in the labor market. Accordingly, in an effort to achieve better resource allocation within the country and enhance the nation's welfare, here is the case for government interference, either indirectly by tax and subsidy, or by direct "nonmarket" measures in order to assist in the transfer of labor from unemployment in agriculture to employment in industry.

Let us illustrate with a diagram how tariffs may equate private and social costs and thus improve the efficiency of allocation of resources.

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[1] Mihail Manoilesco, The Theory of Protection and International Trade, London: P. S. King and Son, 1931. French ed., 1929.

The production possibilities curve AB'(Fig. 3.3) represents the social transformation curve (i. e. transformation curve in terms of social cost) between jute and steel, but entrepreneurs, given market prices of factors of production which, let us say, exaggerate the real costs of making steel due to factor immobility, operate as if the production-possibilities curve were APB. Under these circumstances they will produce at P, traded PT of jute for TC of steel, and consume at C. If a tariff on steel (or possibly an export tax on jute combined with a subsidy on steel) is imposed, which helps equate private to social costs, the production point would move to P', the country would export T'P' of steel and import C'T' of jute. The welfare of the country is evidently improved when the country consumes at C' than at C.

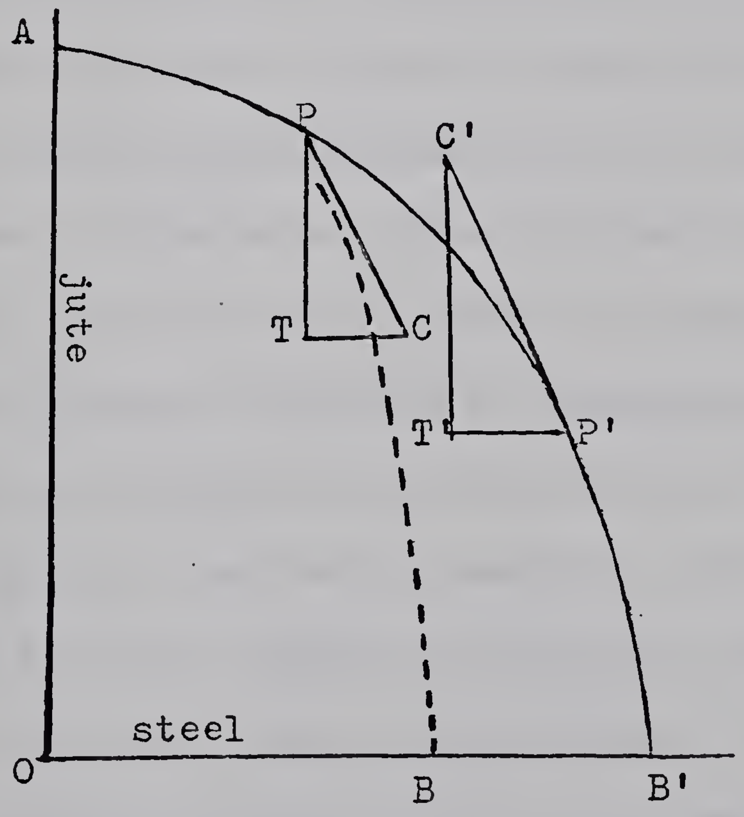

Fig. 3.3 Divergence between social and private transformation curves due to factor immobility.

The private cost is brought into conformity with social cost through increased mobility of production factors. Once the entre-

preneurs in steel industry, through the assistance of an import tax, build new steel plants or enlarge the production capacities of the existing ones, factors of production start gradually moving from low paid occupations (in our case, jute) to the higher paid ones (in our case, steel). Mobility of factors could be effected more quickly if coupled with other forms of government interference.

In response to the price differences, the steel industry grows continually to such an extent that economies external to the firms inside the industry are made available. The gap between private and social costs is then completely patched up.

The existence of disguised unemployment in the agricultural sector is not the only case in which an underdeveloped country may suffer from resource misallocation due to imperfect mobility of factors between occupations. There is also disparity between private and social costs whenever there are varying degrees of monopoly even in different branches of manufacturing. The result of such monopolistic elements will be that under free trade too much of the community's productive resources will be induced to enter industries with low degrees of monopoly, while too little goes into those which are highly monopolistic. It is suggested, therefore, that tariffs should be put on the goods which compete with production in the relatively monopolistic branches, so that tariffs are used to correct the distortions within manufacturing.

In both of these cases, the tariff would, however, tend to restrict consumption of the protected good, because it leaves the

price of the product high, though it does have the effect of correcting resource allocation among industries. An alleged theoretically better method would be a subsidy. It is a better method because it would encourage both production and consumption of goods whose social cost is less than private cost. But there is a practical problem which limits the use of subsidies in underdeveloped countries. It requires extra taxation. This may be a very serious problem in a country with an underdeveloped tax system and small tax base.

We may now generalize the arguments as follows. Whenever the demand for factors in one occupation grows relative to the demand in other occupations due to differential rates of population change, biased technological improvements, demand shifts, etc., then, with imperfect mobility, existence of monopolistic elements, or factor price rigidity in general, the real rewards paid in the fast-growing occupation get out of step with those paid elsewhere. The commodity of the fast-growing industry is therefore unusually high priced. In other words, the price ratio is not equal to the marginal rate of transformation. Expressed differently, the ratio of private marginal cost of two commodities (in a two-commodity case) does not reflect the social ratio of marginal substitution.

But trade is solely directed by prices. If such prices do not reflect true underlying social costs, price-based specialization may not lead to an optimum allocation of resources. It might well be that a country had a comparative advantage in the

products of one sector on the basis of true costs. However, trade, being directed by prices, might lead specialization away from this field. More specifically, not enough will be produced in the high wage occupations, and too much will be produced elsewhere. If this be the case, it is possible that a country might export a commodity which it should import. The same possibility arises when the "right" industry exports but, because it is also the low wage industry, exports far too much.

As Everett E. Hagen observed, in an economy in which per capita income is rising secularly, the output of manufacturing and mining grows secularly relative to that of agriculture, and the inputs required in manufacturing and mining likewise grow secularly relative to those required in agriculture. As a result of this trend, wages in manufacturing must be higher than those in agriculture, so that manufacturing can secure the continuing added stream of labor that it needs. However, as a result of the wage disparity, manufacturing industry, having a real comparative advantage, will be undersold by imports. Protection of manufacturing will then increase real income in this country.[1]

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[1] Everett E. Hagen, "An Economic Justification of Protectionism", Quarterly Journal of Economics (November, 1958). Hagen brings empirical evidence to bear on his contention that money income per person engaged is generally markedly higher in manufacturing (including mining and construction) than in agriculture. Exceptions to this rule, according to Hagen, are Australia and New Zealand, where incomes show a persistent tendency to be higher in agriculture than in manufacturing. As the reason for this abnormal situation, Hagen offers that in Australia, "industry did not grow out of agriculture, the two being developed more or less simultaneously by immigrants."

In short, whenever there is disparity between private and social costs between occupations within each trading country, international trade, being directed by prices only, may not lead to an optimum allocation of resources. The tariff is considered an effective device in bringing private cost into conformity with social cost through increased mobility of production factors. It does so by increasing the incomes and employment opportunities available in protected industries.

Such policies look somewhat odd, however, since they would involve increasing prices charged to consumers of goods whose prices are already relatively high, compared to marginal costs. Such policies would thus tend to worsen the "efficiency of consumption" even if it improved the allocative efficiency of the economic system on the production side. But since resource allocation is so much more important to a country's economic development, the worsening of consumption efficiency would be better regarded as the price the general public has to pay for continuing economic growth and better living in the future.

Section 4 Trade Regulations Promote Economic Development Through Internal and External Economies

In general, there are in underdeveloped countries industries which can not compete on world markets with longer established foreign producers, but which may nevertheless be able to compete very effectively in their maturity. In other words, the advantages of a more complete international division of labor in the short

run may properly be spurned in favor of the long run fruits of a higher rate of technical progress.

In The Principles of Political Economy, John Stuart Mill argued, "The superiority of one country over another in one branch of production often only rises from having begun it sooner. There may be no inherent advantage on one part, or disadvantage on the other, but only a present superiority of acquired skill and experience. A country which has this skill and experience yet to acquire, may in other respects be better adapted to the production than those which were earlier in the field; and besides, ..., that nothing has a greater tendency to promote improvements in any branch of production than its trial under a new set of conditions. But it cannot be expected that individuals should, at their own risk, or to their certain loss, introduce a new manufacture, and bear the burden of carrying it on until the producers have been educated up to the level of those with whom these processes are traditional. A protecting duty, continued for a reasonable time, might sometimes be the least inconvenient mode in which the nation can tax itself for the support of such an experiment."[1]

Mill's argument is the most typical infant industry argument, which has been generally accepted by international trade

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[1] J. S. Mill, The Principles of Political Economy, ed. Sir W. J. Ashley, London: Longmans, Green and Company, 1909.

theorists.

This version of the infant industry argument is virtually based on internal economies. It says that the average costs of a firm may fall as it gains experience in production and distribution. These are internal economies of learning and mean that an early period of high costs is a prerequisite for later periods when costs are low. The losses of the early period are thus the investment needed to obtain the gains of the later period. Therefore, this particular industry should be protected. Otherwise the firms in the industry would make losses initially or even would not start in the first place, although they would make profits or at least reduced loss eventually.

Most economists would argue that the extra expense needed to cover the losses in the initial period should be regarded as a part of initial investment and should be made by the firm itself borrowing, if necessary, on the capital market. But two possible justifications can be suggested why the community should make or subsidize the investment. First, it is usually a very long-term and uncertain investment and the community's valuation of uncertain future income may be higher than the firm's or the capital market's. Secondly, there may be an imperfection in the capital market so that capital for this purpose cannot be readily obtained.

In order to pass judgement whether an industry should be granted protection, Mill claimed, "It is essential that the protection should be confined to cases in which there is ground

of assurance that the industry which it fosters will after a time be able to dispense with it; nor should the domestic producers ever be allowed to expect that it will be continued to them beyond time for a fair trial of what they are capable of accomplishing."

In an attempt to make Mill's criterion more strict, C. F. Bastable, in his book The Commerce of Nations, pointed out that the mere prospect of overcoming a historical handicap is not enough to warrant assistance. It is necessary, further, that the ultimate saving in costs should compensate the community for the high costs of the protected learning period. It is necessary, in particular, that when a suitable time discount is applied to the early excess costs and to the eventual cost savings, the commodity still should be worth producing.[1]

They are known later as the "Mill test" and the "Bastable test" respectively. To be worth protecting, an industry must pass not only the "Mill test" but also the "Bastable test".

Although analytically interesting, both Mill and Bastable tests are of little practical use. For it is very difficult to calculate, at the time when a tariff is imposed, the assurance that an industry could be able to dispense with protection or to apply a suitable time discount to the early excess costs and to

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[1] C. F. Bastable, The Commerce of Nations, 10th ed., revised by T. E. Gregory. London: Macmillan and Company Ltd, 1921.

the eventual cost savings.

Further, had Mill written his argument to-day, he might have stressed more than the learning process only. Aside from economies of learning, there are static economies of scale too. Average costs may fall over time because the size of the market grows so that the firm moves down the static cost curve. Suppose that the average cost falls gradually from 40 percent above c. i. f. import prices to equality with the import prices owing to economies of scale resulting from market expansion. In the absence of tariffs, the industry would not be started at all unless private enterprise miscalculated.

Moreover, what are more important than internal economies are the possibilities of external economies. External economies are commonly believed to be more important in the industrial sectors than in primary production. It is through the external economies that an industry can ultimately and more effectively decrease cost of production, increase its competitive power in the world markets, and become able to dispense in part or completely with protection.

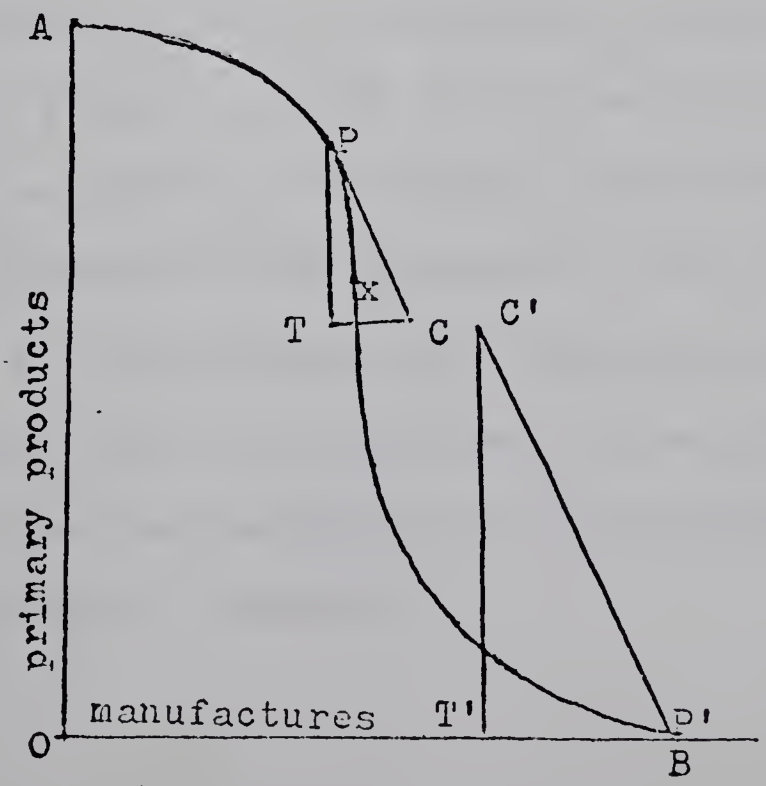

Fig. 3.4 Industrialization through tariff.

As Fig. 3.4 shows, there are decreasing returns in primary products, but increasing returns in manufactures due to external economies. The production-possibilities curve AB between primary products and manufactures starts out from production concave to the origin, suggesting increasing opportunity costs, or diminishing returns, between the two classes of goods. With production in this range, the country finds that it pays to specialize on primary products, to produce at P and to trade PT of primary products for TC of manufactures. But if a tariff on manufactures can raise the price in terms of primary products, sufficient to push output beyond an inflection point say , x, the zone of increasing returns would be reached which would carry production all the way to complete specialization in manufactures. Then this country is industrialized through a tariff. Manufactures would now be exchanged for primary production, instead of the other way round, and at C' the country would be better off than at C.

It is generally held, on empirical grounds, that the tariff has stimulated economic growth in many countries and has made possible the realization of internal and external economies in the field of production and investment. The external economies could perhaps be investigated with the help of input-output analysis which could show how industries are related to each other in the sense that they contribute to one another's production and use one another's products.

Section 5 Trade Regulations Promote Economic Development Through Accelerating Domestic Capital Formation

It is generally agreed upon that there is some sort of "demonstration effect" prevalent in underdeveloped countries. Not all consumption expenditures through the "demonstration effect" can be construed as improvements in welfare. The adoption of the European breakfast in place of fish and soybean soup in Thailand is an example in point. It turns consumption away from products in which the country has a comparative advantage, and often reduce dietary levels. Also some objects of consumption are symbolic rather than useful: the underdeveloped world prizes above all American fountain pens, Swiss watches and British bicycles.

Further, the demonstration effect injects an element of instability and disequilibrium. Classic economic theory operated on the assumption that opening of trade between two countries left tastes unchanged. With the demonstration effect, however, the impact of new trade may have the effect of shifting demands. Before trade, the underdeveloped countries consume native foodstuffs, local products, and go without the material trappings of the developed countries. With trade introduced, there occurs a substantial change in patterns of taste and a shift in demand in favor of imported goods and against the goods produced with a comparative advantage. (It may not entirely fair to attribute all of the demonstration effect to trade. Probably some of it comes from imperialism, military involvements, modern communications, etc.)

The "demonstration effect" (the term was first coined by Prof. R. Nurkse) is used to explain why, at early stages of development, increase in consumption use up all real income in underdeveloped countries, and savings tend to decline. In order to accelerate accumulation of domestic savings, which are so important to economic development, it seems therefore the best thing to do is to restrict a country's imports. In other words, let the government (not the market forces) be the final judge, giving permission for purchases from abroad of capital goods and essential consumption commodities only and suppressing the demonstration effect from working. The demonstration effect tends to stimulate the "aspiration to consume" as well as the "propensity to consume". People's new wants are stimulated and a series of new wants gives rise to another new series. This extravagance of consumption of imports will create balance of payments difficulties and difficulties in financing domestic capital formation.

It may be argued that increasing the savings ratio through controls on imports of consumer goods may not be realized if consumption expenditure merely shifts from imports to domestic products. This is because, the argument runs, a reduction in consumption expenditure is needed for an increase in saving, not a mere change in its composition.

It is believed a general cutback in consumption is possible if it is so desired. But, for argument's sake, even if there is not a complementary domestic policy of suppressing domestic con-

sumption, import restriction can still benefit a nation's economic development and enhance national welfare. There are several reasons for this:

(1) When tariffs are imposed, import-replacement industries of the tariff-imposing country will grow at the expense of decreased imports. As will be demonstrated in Section 6 of this chapter, a part of rural labor will shift from the agricultural sector into industrial sector. As is known to everybody, the productivity of manpower in industry is considerably greater than in the traditional agricultural pursuits. National income and domestic savings will therefore grow proportionately to the increase of real manpower productivity.

(2) External economies are commonly believed to be more important in the industrial sectors than in primary production. If an industry has large economies of scale, then costs and prices must be higher when the industry is small, but they will fall as the industry grows. It follows that larger manufacturing industries will have greater profits than the smaller ones. We can easily see savings grow as profits increase, provided the propensity to consume remains unchanged.

(3) If a tariff were placed on consumption goods, the income of consumption goods producing firms will rise, because they are selling more goods at home. This in turn will raise the income of households working for, and owning, the firms. They too will raise the income of other industries in the country. One of the difficulties of industrial development in underdeveloped countries,

and one of the great hindrances to giving real momentum to a development policy is that internal demand is not adequate. Therefore, import restriction serves to give the first impetus in increasing domestic demand. When the multiplier process is set off, the country's economic development is believed to have been given an extra momentum.

(4) Should import restriction bring about no increase in domestic savings or prove no use in stimulating domestic demand, high tariff policies are nevertheless pursued, because manufacturing industry is regarded as a higher stage of production. The broad historical record shows that rise in per capita income in a country was associated with a sharp increase in the share of total income originating in manufacturing industry. In other words, income originating per person engaged in industry was higher than in the economy as a whole, and in a simple statistical sense, industry contributed greatly to the rise in per capita income. Moreover, the export of manufactures may become a direct means of industrialization, in contrast with the export of primary staples, which provides only a basis for inducing industrialization.

In addition, development of manufacturing industry raises a nation's prestige. This prestige factor should not be ruled out lightly as nonsensical. That there are many underdeveloped countries which prefer mechanization of farming operations in spite of the fact that they are endowed with far more labor than capital is evidence of decision based on national prestige considerations. Indeed, if a country has a serious comparative disadvantage in steel,

then having a steel industry will make the country more poor. But in less extreme examples, like development of manufacturing industries, or farming mechanization, where disadvantages are not so severe and apparent, many countries may go ahead building them even at somewhat higher costs.

A word seems in order as to the retaliation against the tariff-imposing country. It would be a queer world, indeed, if other nations were to sit idly by watching a foreign market disappear. There most certainly would be retaliation by other countries which would reduce exports of the first country. But we believe that the danger of retaliation is exaggerated.

We must bear in mind that an underdeveloped country will increase, instead of decreasing, imports of capital and essential consumption goods in the course of economic development. Such a country needs both "maintenance imports" (that is, inescapable imports such as raw materials, intermediate products, foodstuffs, other essential consumption goods, and capital goods for replacement) plus "development imports" (that is, the direct import requirements for realizing investment targets in the public and private sectors). What are suppressed are unnecessary or luxurious goods stimulated through "demonstration effects." On balance, the country's imports may still increase in comparison with the pre-development period. That is to say, it is the composition of imports, not their volume, which has changed.

Moreover, a country's export earnings can only be used for imports. There is not a single country in the world which earns

foreign exchanges merely for purposes of hoarding. In other words, imports must increase in the long run as a country's export ability grows. As a matter of fact, most underdeveloped countries face some degree of balance of payment difficulty. This is evidence that they import more than they export. If they continue to freely admit imports, then drastic trade restrictions will be necessary as soon as their foreign exchange reserves have been used up unless further and additional foreign aid is forthcoming. In short, their tariffs do not reduce the imports of underdeveloped countries, for these countries import all they can afford.

Section 6 Trade Regulations Promote Economic Development Through Encouraging Inflow of Foreign Capital

Assume there are only two industries in an underdeveloped country -- the labor-intensive industry and the capital-intensive industry. Since capital is often the scarcest factor in underdeveloped countries, such countries naturally export labor-intensive commodities in exchange for the capital-intensive ones. If an underdeveloped country wants to impose a tariff at all, it is naturally imposed on the capital-intensive industry. The tariff usually has the effect, among others, of reallocation of factors within the country.

To begin with, under tariff protection, the import-competing industry will expand rapidly. Given the fixed amount of capital and labor (We neglect for simplicity the other factors of production), both factors will shift from the labor- to the capital-

intensive industry in meeting the requirements of an expanding import replacement industry though the demand for capital is greater than that for labor by assumption. Secondly, when the tariff is imposed, the prices of the capital-intensive products rise relatively to those of the labor-intensive products. Again, factors move out of the labor-intensive industry into the capital-intensive industry in response to the price difference. There will then be both capital and labor shortage. To the extent there is disguised unemployment of labor in the pre-tariff period, labor shortage does not pose any problem. Labor productivity will increase, and so labor income, as a result of labor shift from labor- to capital-intensive industry.

Actually we are dealing here with a dual economy in an underdeveloped country, which is composed of a "capitalist" sector (our capital-intensive industry) and a "subsistence" sector (our labor-intensive industry). As the capital-intensive industry continues to expand in response to the tariff stimulus and the price differences, more and more factors are withdrawn from the subsistence sector.

Under these circumstances, there will no doubt generate a demand for capital which an underdeveloped country lacks. This will raise capital's real return and induce an inflow of foreign capital into that country from the capital rich country where capital's marginal product has remained constant. Capital will continue to flow in until its marginal product is equal in both countries. A general proposition of the Heckscher-Ohlin trade

theory is that commodity movements are a substitute for international factor movements. Here we have the opposite proposition, that protection then stimulates factor movement in place of commodity trade.

When a tariff has the effect of accumulating capital stock in an underdeveloped country and, at the same time, of raising real labor income (both from pulling labor into the "capitalistic" sector and from attracting foreign capital which raises labor's productivity), one cannot see any reason why an underdeveloped country should not adopt a tariff.

The validity of the foregoing argument depends on several assumptions. We assume that capital is mobile and will respond to a change in marginal product. To the extent that the world shrinks more and more day by day through better and faster means of communication and that profit-maximization is a universal principle of all entrepreneurs the world over, this assumption can be regarded as reasonably valid. Of course, it could be invalidated by political and other non-economic considerations. We also assume that there exists in the underdeveloped countries disguised unemployment of labor. Unless the protected industries draw away only the disguised unemployed, production in the labor-intensive industry, usually the export industry, will then to some extent be handicapped. But this might not invalidate our argument. For factor intensities may reverse themselves. Capital intensities might change because the availability of a large amount of capital may bring about the use of relatively more capital-intensive

methods in the production of those commodities which were manufactured labor intensively on a small scale.[1] If this is the case, productivity in both industries will greatly enhanced because of the inflow of foreign capital.

Further, when the tariff becomes high enough against foreign manufacturers, the inflow of direct foreign investment will increase as the foreign manufacturer is induced to escape the import controls by establishing a branch plant or subsidiary behind the tariff wall. These are commonly referred to as "Tariff factories". Although the protection may not be effective in attracting supply-oriented industries, it will certainly appeal to

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[1] One may argue that if an industry is labor-intensive to start with, and then a tariff attracts more capital by raising returns to capital, the labor-intensive industry would become more labor-intensive because capital is now more expensive. But this seems unlikely. When a tariff is imposed, the import-competing industry will rapidly expand. Because of expansion of the import-competing industry, which is usually capital-intensive, more capital will be needed; thus raise the returns to capital, which in turn stimulates inflow of foreign capital. Indeed, at this time, capital becomes more expensive in terms of its rate of returns. But at the mean time, it also becomes less scarce as more foreign capital is made available. The reason why interest rate goes on rising in spite of the increasing amount of capital is that the import-competing industry grows so fast due to imposition of the tariff as to outgrow the increase of capital. As a cooperant factor to capital and in response to the expanding capital-intensive sector, labor must be released from the subsistence sector in sufficient amount. With labor remaining constant in quantity, the price of labor will therefore go up. In addition, the higher returns of capital is only transitory in nature. When the tariff is initially introduced, the rate of interest goes up. Then, as capital continues to flow in, it will be lowered down (but still higher than that in the capital-rich countries). On the other hand, the price of labor will rise unless the protected industries draw away only the disguised unemployed. Then a time would come when the price of labor is higher relative to that of capital. At this time, it may become profitable to use more capital-intensive methods in the production of those commodities which were manufactured labor intensively.

market-oriented industries. It will particularly encourage the final stages of manufacture and assembly of parts within the tariff-imposing country when there is an import duty on finished products while raw materials or parts remain untaxed. If a former supplier of an import can be induced by the protection to come in and establish an industry behind the tariff, this is surely the easiest way in which the country can gain not only capital but also the technical knowledge and experience that are so necessary for the successful establishment of a new industry. (The attraction of foreign capital, enterpreneurs, and skilled immigrants will be even more beneficial to the host country if it can attract the outside firm on terms that will enable the participation of local capital and enterprise as in joint international business ventures. Such forms of partnership may even provide for an increasing degree of participation by national interests over time.)

The establishment of "tariff factories" cannot be determined, however, by tariff considerations alone. If the domestic market for the restricted import remains narrow, the necessary condition for the attraction of direct foreign investment may not be fully met. Granted, however, that the initial market of a particular commodity is indeed restricted, it will be widened by every increase in output and developed with the development of the national economy. Moreover, the expansion of a particular market will contribute to the growth of other markets, and this even-

tually leads to the growth of the economy as a whole. The main issue here is at which point the dead cycle of underdevelopment is broken. This is commonly known as the argument of balanced growth policy vs. unbalanced growth.

Section 7 Trade Regulations Promote Economic Development Through Increase of Employment

The classical theory of the gains from free trade assumes full employment and then concentrates on finding the method of producing a particular commodity which involves the lowest opportunity cost (i. e., the least possible sacrifice of other goods), or starts estimating the disadvantage (or costs) when the free trade principle is violated.

To illustrate the point, let us take an example.

Consider a free trading country which decides to promote the domestic production of an imported commodity, say, household brooms.[1] Brooms, we shall assume, can be imported from abroad at a price of $1.00 each but, due to a variety of factors, cost $1.25 each to produce at home. In a normal year the country produces no brooms but imports one million from abroad. Now assume a customs duty of 25% is imposed on household brooms and this is effective in completely replacing imports by domestic production. In the new situation consumers must pay a price of $1.25 and as a result they consume fewer brooms; say, 900,000 at a total cost

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[1] The broom example is drawn from J. H. Young's book Canadian Commerical Policy, Ottawa: Royal Commission on Canadian's Economic Prospects, 1957.

of $1,125,000. Resources which formerly produced $1 million worth of exports, and other resources which produced $125,000 worth of domestic goods, are attracted into the broom industry where after an initial period they receive the same earnings as similar resources employed elsewhere in the economy. Instead of being able to buy 900,000 brooms for $900,000, consumers must pay an extra $225,000 to subsidize the domestic production of a commodity in which the country has a comparative disadvantage. This amount of $225,000 is the cash cost of this protective tariff, that is, the amount which consumers must pay over and above the amount they would have had to pay if they could have bought the same good freely in world markets. The higher price charged for brooms does not lead to higher returns to the labor and capital in the broom industry, but merely provides compensation for higher costs of production. Instead of procuring brooms by producing exports and trading for brooms, the country has now adopted the less efficient alternative of producing brooms directly. This leads to a loss of real income or an economic cost of about the same magnitude as the cash cost of the tariff. The loss of the economy comes from the fact that resources which earned $1,125,000 were transfered from a use in which they produced commodities worth $1,125,000 to a use in which they produce commodities which could be purchased elsewhere for only $900,000. The real productivity of the labor and capital involved falls as a result of their transfer to an industry for which the country is not well-suited.

The above argument is not too far from fact on the condition

that the country in question is at full employment. But if a country is threatened with heavy unemployment, then the situation is entirely different. There are virtually no opportunity costs at all in putting idle resources to work producing some goods like household brooms. Let us follow the brooms example. Resources which produce $1 million worth of exports and other resources for producing $125,000 worth of domestic goods need not be attracted from their initial uses, if broom production can be undertaken with previously unemployed resources. No matter how ineffective the country is in producing household brooms or others, as long as household brooms, or the like, have any value at all then there is a gain in using resources to produce them rather than leaving the resources in idle.

In many underdeveloped parts of the world, though not all, high population density and high rates of population increase are so severe as to cause high rate of disguised unemployment in the agricultural sector. The tariff as a means of combating unemployment is particularly important to these countries. Disguised unemployment means that beyond a certain number of workers the marginal productivity of labor is zero in agriculture, and that when some labor is withdrawn from agriculture, output can still maintained without any change in organization or in cooperant factors. While the marginal product of the surplus labor is not enough for its own support, the institutional arrangement of the family farm, in which the unit of production is also the unit of consumption, allows the members of the household to share in

the total product, receiving approximately the average product. When the marginal product of labor is less than the average product, the marginal workers are, in effect, being subsidized by the rest of the peasant community.

Consider a country whose foreign payments are in balance but with a substantial amount of disguised unemployment in the primary industry sector. Then imposition of import tariffs at this time will serve to stimulate expansion of import-competing industries. This in turn will stimulate labor mobility from the agricultural sector to secondary and tertiary industries. This is better demonstrated with a diagram.

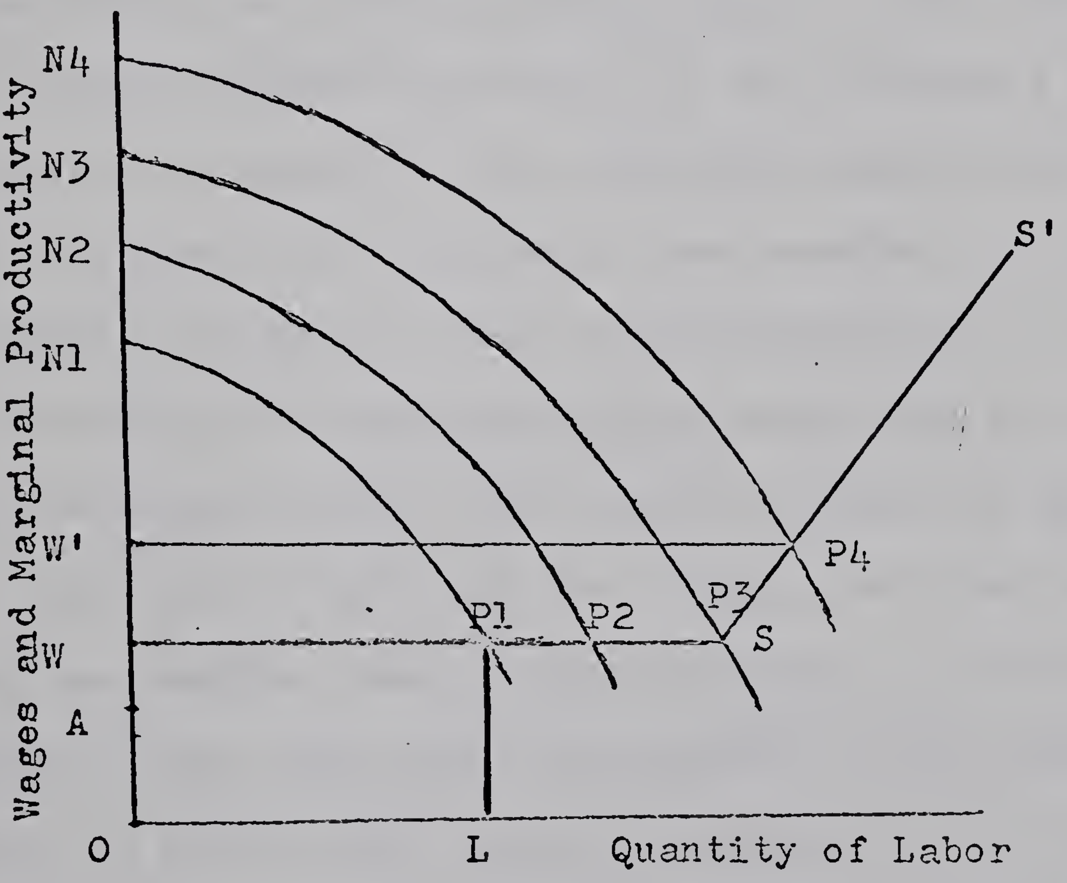

Fig. 3.5 Increase of employment through tariff.

As shown in the Figure, OA represents average subsistence earnings of labor in the agricultural sector, OW the real wage

rate in the expanding import-competing industries. (To induce the excess workers to transfer to industrial employment from the subsistence sector, it is generally necessary to offer a premium above the subsistence wage. Thus, OW must be greater than OA.) WS represents the supply curve of labor, its perfect elasticity indicating existence of a great number of surplus laborers in agriculture. With this amount of extra labor available, the import-competing industries are able to expand continuously until the current wage equals the marginal productivity of labor. This occurs at P_1 in our figure. The area WN_1P_1 then represents the profits earned by the import-competing industries through increased productivities of labor and other factors. (Please consult section 5 of this chapter.) When these profits are re-invested in the industries coupled with foreign capital attracted into the country (see section 6 of this chapter), the production frontier of the related industries is pushed outward, indicating the import-competing industries and related industries continue to grow. The scope of production goes on enlarging from N_1P_1 to N_2P_2 and then to N_3P_3 until all surplus laborers are removed from the primary sector. At this point, full employment of the labor force is reached in this country. Beyond point P_3, the labor supply curve runs upward to the right, indicating that the supply of labor is no longer perfectly elastic to the industries after agricultural disguised unemployment is eliminated. Industrial expansion beyond P_3 will draw away fully employed labor from agriculture and therefore reduce to agricul-

tural production. Considering the fact that agricultural production is necessary to supply food for a growing population and to supply raw materials for expanding domestic industry in the course of economic development, further expansion of import-competing industries beyond P_3 will be at the expense of balanced growth, unless capital intensities in the agricultural sector may change because of the availability of a large amount of capital. (That the factor intensities may reverse themselves in the course of economic development is highly possible. Please refer back to section 6 of this chapter and also chapter I.)

That a tariff will increase employment by an amount which is a multiple of the decline in imports at the starting level of employment can also be illustrated by Fig. 3.6.

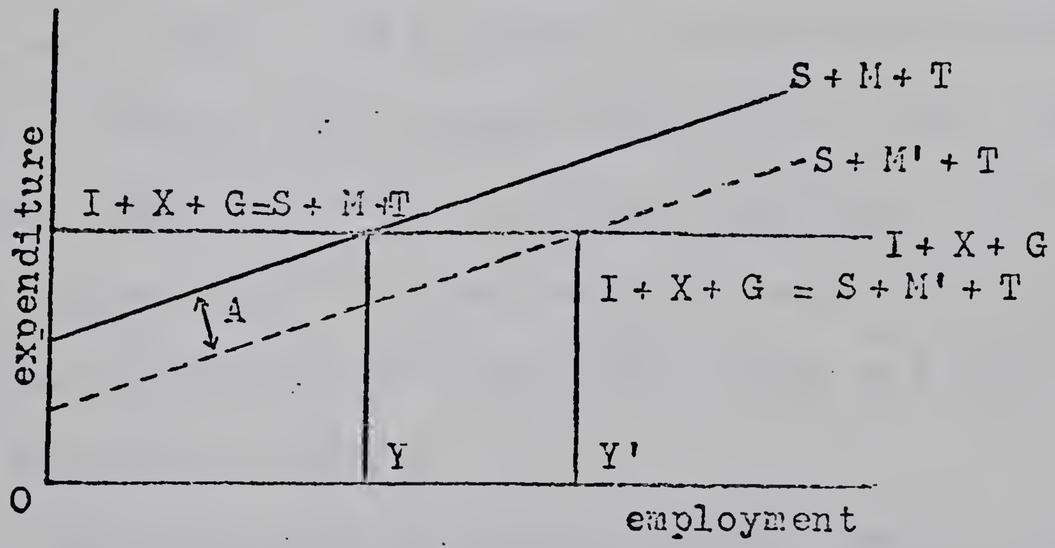

Fig. 3.6 The multiplier effect of the decline in imports.

Here exports remain unchanged, but imports are assumed to be reduced from M to M', the change in employment (or national income) is the change in imports multiplied by the reciprocal of the slope of the S + M' + T schedule, or the reciprocal of the mar-

ginal propensity not to consume domestic products.

Imposition of a tariff changes import function to:

$$M = mY - A$$

Where A represents amount of shift of the $S + M + T$ schedule.

At equilibrium level of employment (or national income),

$$\Delta Y = \Delta C + \Delta G + \Delta I + \Delta X - \Delta M$$

$$= c\Delta Y + 0 + 0 + 0 - m\Delta Y + A$$

$$\Delta Y (1 - c + m) = A$$

$$\Delta Y = \frac{A}{1 - c + m}$$

But $(c + s + t) = 1$

$$c = 1 - s - t$$

$$\therefore \Delta Y = \frac{A}{s + t + m}$$

To summarize, protection of import-competing industry will increase national income and employment when there is unemployment. A reduction in imports will increase spending at home. Depending on the various leakages in this increased spending, such as the part spent on imports and the part saved at home, there may result a considerable increase in real national income and employment through the multiplier effect.

Against the gains must be set the higher costs of production which arise in producing those goods which were formerly imported. Such losses are likely to be smaller than the gains if unemployment is severe and if absence of retaliation may be assumed. To put it differently, the loss in production through unused resources with a tariff would more than offset the gain through a more efficient

allocation of resources which is assumed to be possible by means of adopting a free trade with other nations.

A country restricting imports to improve the employment position at home in times of general unemployment is said to "export" its unemployment by causing income abroad to fall. Joan Robinson has aptly called it "beggar my neighbor policies", which have rightly been condemned by most modern economists and which are very likely to invite retaliation.

But if the tariff increases growth and incomes in the underdeveloped country, this will in the longer run be of benefit to employment in other countries which would then be able to sell more goods to it.

Section 8 Other Considerations for Tariffs

The gains from free trade stem from increases of a nation's production and welfare. Those advocating trade regulations, on the other hand, speaking from the experiences of underdeveloped countries, would claim that free trade based on existing comparative advantages tends to decrease, not to increase, a nation's welfare in the long run. But so far, one thing is in common, namely, both the pro- and anti- free trade theorists agree that national production and welfare should be the goal of a nation's trade policy.

It is quite possible, however, there are policy objectives other than production and consumption. There is a large number of policy goals other than maximising national income. Although most people would agree that, other things being equal, they prefer more income to less, the economist cannot pronounce as irrational

anyone who chooses to sacrifice some income in order to achieve other goals. The purpose of this section is to outline important arguments for protective tariff and other trade regulations from the view point other than economic gains.

(1) Diversification of Industry:

Comparative costs[1] might, for example, dictate that a country should specialize in the production of a few primary products. It might be decided, however, that there were distinct social advantages to having a more diverse economy so that, for example, the citizens would have a wider range of occupations in which to develop their talents. It might be felt that the social and psychological gains from having a diverse economy would more than compensate for a reduction in living standards to a level which was, say, 5% below what they could be with free trade.

Another possibility would be related to fluctuations in the prices of certain primary goods. Comparative advantages[2] might dictate that a country should specialize in the production of one or two primary commodities. But too much specialization means putting all one's eggs into one basket and makes the economy vulnerable to fluctuations in world markets. Now the problems arising from having a widely fluctuating national income might be regarded as very serious and it might be regarded as sensible to accept a somewhat lower average income in order to reduce fluctuations. This could be done by encouraging the expansion of some more

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1 and 2
It refers to short run comparative advantages.

stable industries under the protection of tariff walls.

There is another risk connected with a country's overspecialization in production. Future technological changes may render the product(s) obsolete.

(2) Military Considerations:

Still fresh in the memory of many industrialists and military procurement officers are such examples as the inability of the United States to get crude rubber during the Second World War because of Japanese control of the source of supply and the frantic efforts to produce the synthetic product, as well as to develop alternate sources of supply in the Western Hemisphere. This is a clear evidence that a nation must have stand-by sources of commodities to meet a war or wartime isolation. Consequently, a home industry must be established and tariff levied to protect it from competing products from other nations. Every nation must stand ready to bear the costs involved because of the inefficient application of capital and labor to the production of goods that can be manufactured cheaper elsewhere.

If we carry this argument to the extreme, it would mean each nation must become as nearly self-sufficient as possible. An alternative to the self-sufficiency of each country individually is the cooperation among friendly nations. If, for example, the struggle between the free world and communism continues, the nations of the world will eventually be divided politically, economically, and militarily into two groups. Should this situation develop, it is en-

tirely conceivable that each family of nations could rationalize its basic industries so that each country within the group could specialize in the production of those products for which it had the best factor equipment. In case of war, the nations within each sphere of influence would presumably have the requisite industries among them so that as a unit they would be self-sufficient.

This shift from self-sufficiency of an individual nation to that achieved within a bloc of nations would mitigate the use of tariff. In other words, the need for a nation to support any particular industry by means of a tariff would then be reduced. This does not mean, however, that all the advantage of free trade would be obtained, since the costs of producing the commodities might still be higher than in other parts of the world.

(3) Political Considerations:

Each country is sub-divided into a number of provinces, states or other administrative divisions. While tariffs are common between countries, one can hardly find nowadays a single country who imposes protective tariffs among different provinces within the same country. But in the old times, China did place tariff rates on commodities which passed from one province to another within the country, to cite an example.

It is possible when at some time in the remote future all nations in the world agree to organize into a single super nation, to which all member nations surrender completely and absolutely their sovereignty, tariffs among countries may be done away in the same fashion as tariffs among different provinces within the

old China. The fact that even the present-day United Nations, which has never been given absolute sovereignty power over her member nations, seems now on the verge of collapse shows that emergence of such a unified world-wide supernation, if it is ever possible, is still a far, far away dream. It is a natural conclusion that tariffs and other trade regulations will continue to function until that big day comes. Then why do so many economists feel so strongly about free trade? One answer may be that political reality lags far behind economists' thinking. The other answer is that it is probably a reaction of economists against the arguments and motives of politicians advocating high tariffs. Notice that the theory of international trade and the comparative cost doctrine were first developed by the English Classical economists and their development was to a large extent the by-product of the anti-corn law agitation. Granted many of the politicians' arguments may contain crude fallacies and many of the motives for advocating tariffs are suspect. Even if many of the politicians' arguments are incorrect, it does not prove the correctness of the free trade arguments, however.

Chapter IV

Conclusions

The difference between a policy of free trade and one with a tariff is still of a feeling and passionate controversy among politicians as well as among economists. In this thesis, the author, paying special attention to underdeveloped countries, stresses the advantages of regulated trade policies.

The comparative advantage principle is no doubt the basic theory underlying the Ricardian trade model and the Heckscher-Ohlin model, though the latter goes behind comparative costs and establishes them as due to something more fundamental, namely, differences in factor endowments. But the classical comparative advantage theory is largely a simplified form of static general equilibrium theory. In all countries, especially those which are gaining rapid economic progress, the structure of comparative costs changes over time. Therefore, the suggestion that each country in the world should produce commodities and trade them with other countries according to a simple once-for-all ranking procedure along the lines of the comparative advantage principle leads only to comparative stagnation the world over.

Classical trade theory, especially the Heckscher-Ohlin model, does not exclude changes in the supply of factors and other data over time, but it does insist that under perfect competition the effects of such changes will be reflected in the market mechanism. But even in the most advanced countries, "perfect competition" is

still an impossibility. Even the United States is far from realizing an approximate equality of either wages or prices, or returns to capital as between different parts of the country. As to other countries, such as England, France, Belgium, and Germany, local diversities of all sorts have persisted for centuries. The impediments are even more serious in underdeveloped countries. There, inferior organization of capital and labor, inferior domestic banking, inferior internal means of communication, inferior perception of economic opportunity are more important obstacles, among others, to realizing a perfect competitive market mechanism. Therefore, the classic theorists' claim that changes of a country's supply of factors will be reflected in the market mechanism and eventually in the advantages and disadvantages in production is not warranted due to the very fact that "perfect competition" is nonexistent in practically all instances. But trade is solely directed by prices. If commodity prices do not reflect true underlying social costs, price-based specialization may not lead to an optimum allocation of resources. It might well be that a country had a comparative advantage in the products of one sector on the basis of true costs. However, trade, being directed by prices, might lead specialization away from this field. Under these circumstances free trade may force countries to specialize in goods in which they have a comparative disadvantage. It is also possible that a country may export a commodity which it should import. If this be the case, free trade policy is not increasing, but decreasing,

production and welfare, not only the country individually, but the whole world collectively.

Trade regulations are no doubt conducive to countries possessing the potentiality and the desire to change their status from the underdeveloped to developed. They promote economic development through efficient resource allocation, through internal and external economies, through accelerating domestic capital formation, through encouraging inflow of foreign capital, through increase of employment, and so on. A country restricting imports to improve the employment position is said to "export" its unemployment by causing income abroad to fall. Joan Robinson has aptly called it "beggar my neighbor policies", which have rightly been condemned by most modern economists and which are very likely to invite retaliation. But the danger of incurring retaliation is exaggerated.

We must bear in mind that an underdeveloped country will increase, instead of decreasing, imports of capital and essential consumption goods in the course of economic development. Such a country needs both "maintenance imports" (that is, inescapable imports such as raw materials, intermediate products, foodstuffs, other essential consumption goods, and capital goods for replacement) plus "development imports" (that is, the direct import requirements for realizing investment targets in the public and private sectors). What are suppressed are unnecessary or luxurious goods stimulated through "demonstration effects." On balance, the country's imports may still increase in comparison with the predevelopment period. That is to say, it is the composition of imports,

not their volume, which has changed.

Moreover, a country's export earnings can only be used for imports. There is not a single country in the world which earns foreign exchanges merely for purposes of hoarding. In other words, imports must increase in the long run as a country's export ability grows. As a matter of fact, most underdeveloped countries face some degree of balance of payment difficulty. This is evidence that they import more than they export. In short, their tariffs do not reduce the imports of underdeveloped countries, for these countries import all they can afford.

For empirical evidences, the present writer cites the MacDougall study, the Leontief study and the Tatemoto and Ichimura study. Neither study reaches conclusions in support of the particular theories of the basis of comparative advantage. The Leontief study, on the other hand, disclosed the United States is defying the Heckscher-Ohlin principle by importing capital-intensive goods and exporting labor-intensive ones. The present writer also brings empirical evidences to bear on his contention that even if the tariff does not help a country much in economic development, the costs associated with imposition of a tariff will normally be low in terms of a nation's income. In this respect, the author cites the Wemelsfelder study, the Johnson study, the Young study and the 1929 Enquiry of Australia. It is true, however, these studies, while revealing the low costs associated with a considerable tariff, do not lead to the conclusion that regulatory trade practices benefit economic development.

It is also true that the positive values of tariffs outlined in Section 3 through 8 in Chapter III of this paper are basically "a priori" arguments. But the same can be said about the theory of free trade. Further, the free trade theory is built on a very special set of assumptions. The theory is based on an assumption of competition which ensures that relative prices will reflect real opportunity costs. If the degree of competition differs between different industries and localities, relative prices will not reflect comparative costs. The theory is based on the assumption that the existence of trade does not affect domestic production possibilities. It might be that the removal of a tariff would arouse suspicion on the part of labor unions. As a counter measure labors might choose to slow down production or go to strike all together, thus reduce domestic production. The theory is also based on the assumption of full employment. Everyone would agree that free trade would not be worth having if its price were massive unemployment.

The controversy between the pro- and anti-free trade doctrine is by no means easy to settle. To be out of the dilemma, more empirical works should be added to the existing stock. It might be the case, to take an example, that free trade led to a slightly higher average level of unemployment than would a situation of, say, 20% tariffs. If this were so then everything would depend on the magnitude of the gains resulting from resource re-allocation under free trade. If, for example, free trade led to a re-allocation of resources which was ½% more efficient than one resulting from

20% tariffs, but simultaneously to an average level of unemployment 1% higher than the one occuring with 20% tariffs, then free trade would bring losses rather than gains. It might also be the case that a tariff may help a country achieve such a stimulus and thus lead to ultimate economic development. If this were so then everything would depend on the magnitude of the ultimate growth of world production and welfare contributed by the growth of this tariff-imposing country assessing against the possible losses incurred by the said country in terms of resource reallocation and her trading partners in terms of unemployment, if any, and so on. This would involve application of a suitable time discount to the early costs and to the eventual gains. Unfortunately, at present, we have very little empirical evidence to prove or refute one thing or the other. In the absence of careful measurement and testing, an all-out conclusion seems impossible. It seems to the present writer, however, that those underdeveloped countries, who possess both the potentiality and the desire to development, are fully justified if they attempt to stimulate manufacturing within their boundaries by an export tax on all raw materials or by a tariff on manufactures, because such trade regulations will in the long run contribute to the related country's as well as the world's production and welfare.

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